

109TH CONGRESS  
1ST SESSION

# H. R. 3250

To authorize appropriation for the National Aeronautics and Space  
Administration, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

JULY 12, 2005

Mr. GORDON (for himself, Mr. UDALL of Colorado, Mr. AL GREEN of Texas, Mr. MILLER of North Carolina, Mr. COSTELLO, Ms. EDDIE BERNICE JOHNSON of Texas, Ms. HOOLEY, Mr. HONDA, Mr. DAVIS of Tennessee, Ms. JACKSON-LEE of Texas, Mr. BAIRD, Mr. MATHESON, Mr. COSTA, Mr. MOORE of Kansas, Mr. CARNAHAN, Mr. MELANCON, Mr. SHERMAN, Mr. WU, Mr. LIPINSKI, and Ms. WOOLSEY) introduced the following bill; which was referred to the Committee on Science

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## A BILL

To authorize appropriation for the National Aeronautics and  
Space Administration, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

### 3 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

4 (a) SHORT TITLE.—This Act may be cited as the  
5 “National Aeronautics and Space Administration Author-  
6 ization Act of 2005”.

7 (b) TABLE OF CONTENTS.—The table of contents for  
8 this Act is as follows:

- Sec. 1. Short title; table of contents.
- Sec. 2. Findings.
- Sec. 3. Definitions.

## TITLE I—AUTHORIZATION OF APPROPRIATIONS

### Subtitle A—Authorizations

- Sec. 101. Fiscal year 2006.
- Sec. 102. Fiscal year 2007.
- Sec. 103. Fiscal year 2008.

### Subtitle B—General Provisions

- Sec. 111. Technology transfer program.
- Sec. 112. Proportionality.
- Sec. 113. Limitations on authority.
- Sec. 114. Notice of reprogramming.
- Sec. 115. Structure of budgetary accounts.
- Sec. 116. Cost growth and cost overruns.
- Sec. 117. Evaluation criteria for budget request.
- Sec. 118. Official representational fund.
- Sec. 119. Safety management.
- Sec. 120. Lessons learned and best practices.

## TITLE II—SCIENCE

### Subtitle A—General Provisions

- Sec. 201. Prioritization of science projects and activities.
- Sec. 202. Performance assessments.
- Sec. 203. Status report on Hubble Space Telescope servicing mission.
- Sec. 204. Future of the Deep Space Network.
- Sec. 205. Earth observing system.
- Sec. 206. Independent assessment of Landsat-NPOESS integrated mission.
- Sec. 207. Assessment of science mission extensions.
- Sec. 208. Microgravity research.

### Subtitle B—Remote Sensing

- Sec. 211. Definitions.
- Sec. 212. Pilot projects to encourage public sector applications.
- Sec. 213. Program evaluation.
- Sec. 214. Data availability.
- Sec. 215. Education.

### Subtitle C—George E. Brown, Jr. Near-Earth Object Survey

- Sec. 221. George E. Brown, Jr. Near-Earth Object Survey.

## TITLE III—AERONAUTICS

- Sec. 301. Definition.

### Subtitle A—National Policy for Aeronautics Research and Development

- Sec. 311. Policy.

### Subtitle B—NASA Aeronautics Breakthrough Research Initiatives

- Sec. 321. Environmental aircraft research and development initiative.
- Sec. 322. Civil supersonic transport research and development initiative.
- Sec. 323. Rotorcraft and other runway-independent air vehicles research and development initiative.
- Sec. 324. Review.

#### Subtitle C—Other NASA Aeronautics Research and Development Activities

- Sec. 331. Fundamental research and technology base program.
- Sec. 332. Airspace systems research.
- Sec. 333. Aviation safety and security research.
- Sec. 334. Zero-emissions aircraft research.
- Sec. 335. Mars aircraft research.
- Sec. 336. Hypersonics research.
- Sec. 337. NASA aeronautics scholarships.
- Sec. 338. Aviation weather research.
- Sec. 339. Assessment of wake turbulence research and development program.
- Sec. 340. University-based centers for research on aviation training.

### TITLE IV—HUMAN SPACE FLIGHT

- Sec. 401. International Space Station completion.
- Sec. 402. Use of the International Space Station and annual report.
- Sec. 403. International Space Station cost cap.
- Sec. 404. Space shuttle transition.
- Sec. 405. Human exploration priorities.
- Sec. 406. Development of expanded permanent human presence beyond low-Earth orbit.
- Sec. 407. Ground-based exploration analog capabilities.
- Sec. 408. GAO assessment of feasibility of Moon and Mars exploration missions.
- Sec. 409. United States human-rated launch capacity assessment.

### TITLE V—OTHER PROGRAM AREAS

#### Subtitle A—Space and Flight Support

- Sec. 501. Space communications study.
- Sec. 502. Orbital debris.
- Sec. 503. Secondary payload capability.
- Sec. 504. NASA healthcare program.

#### Subtitle B—Education

- Sec. 511. Institutions in NASA's minority institutions program.
- Sec. 512. Program to expand distance learning in rural underserved areas.
- Sec. 513. Charles "Pete" Conrad Astronomy Awards.
- Sec. 514. Review of education programs.
- Sec. 515. Equal access to NASA's education programs.

### TITLE VI—COMMERCIALIZATION

- Sec. 601. Competitive prize program to encourage development of advanced space and aeronautical technologies.
- Sec. 602. Commercial support of International Space Station operations and utilization.
- Sec. 603. Commercialization plan.
- Sec. 604. Commercial goods and services.

## TITLE VII—WORKFORCE AND FACILITIES

- Sec. 701. Workforce strategy.
- Sec. 702. Facilities plan.
- Sec. 703. NASA test facilities policy.
- Sec. 704. Study on the feasibility of use of ground source heat pumps.
- Sec. 705. Facilities management.

## TITLE VIII—MISCELLANEOUS AMENDMENTS

- Sec. 801. Retrocession of jurisdiction.
- Sec. 802. Extension of indemnification authority.
- Sec. 803. Intellectual property provisions.
- Sec. 804. Electronic access to business opportunities.
- Sec. 805. Requirement for independent cost analysis.
- Sec. 806. Limitations on off-shore performance of contracts for the procurement of goods and services.

## TITLE IX—INDEPENDENT COMMISSIONS

- Sec. 901. Definitions.

## Subtitle A—International Space Station Independent Safety Commission

- Sec. 911. Establishment of Commission.
- Sec. 912. Tasks of the Commission.

## Subtitle B—Human Space Flight Independent Investigation Commission

- Sec. 921. Establishment of Commission.
- Sec. 922. Tasks of the Commission.
- Sec. 923. Role of NTSB.

## Subtitle C—Organization and Operation of Commissions

- Sec. 931. Composition of Commissions.
- Sec. 932. Powers of Commission.
- Sec. 933. Public meetings, information, and hearings.
- Sec. 934. Staff of Commission.
- Sec. 935. Compensation and travel expenses.
- Sec. 936. Security clearances for Commission members and staff.
- Sec. 937. Reporting requirements and termination.

1 **SEC. 2. FINDINGS.**

2       The Congress finds the following:

3               (1) NASA is and should remain a multimission  
 4       agency with a balanced and robust set of core mis-  
 5       sions in science, aeronautics, and human space  
 6       flight.

1           (2) The President’s vision of returning humans  
2           to the Moon and then venturing further into the  
3           solar system on a step-by-step basis provides a sus-  
4           tainable rationale for the United States human  
5           space flight program.

6           (3) Maintaining the capability to safely send  
7           humans into space is essential to maintaining  
8           United States preeminence in human space flight.  
9           Thus, a gap in United States human space flight ca-  
10          pability is harmful to the national interest.

11          (4) The United States should honor its inter-  
12          national commitments to the International Space  
13          Station program.

14          (5) The United States must remain the leader  
15          in aeronautics and aviation. Any erosion of this pre-  
16          eminence is not in the Nation’s economic or security  
17          interests. Past Federal investments in aeronautics  
18          research and development have benefited the econ-  
19          omy and national security of the United States and  
20          improved the quality of life of its citizens.

21          (6) Long-term progress in aeronautics and  
22          space requires continued Federal investment in fun-  
23          damental research, test facilities, and maintenance  
24          of a skilled civil service workforce at NASA’s Cen-  
25          ters.

1 **SEC. 3. DEFINITIONS.**

2 In this Act:

3 (1) ADMINISTRATOR.—The term “Adminis-  
4 trator” means the Administrator of the National  
5 Aeronautics and Space Administration.

6 (2) IN-SITU RESOURCE UTILIZATION.—The  
7 term “in-situ resource utilization” means technology  
8 or systems that can convert indigenous or locally-sit-  
9 uated substances into useful materials and products.

10 (3) ISS.—The term “ISS” means the Inter-  
11 national Space Station.

12 (4) NASA.—The term “NASA” means the Na-  
13 tional Aeronautics and Space Administration.

14 **TITLE I—AUTHORIZATION OF**  
15 **APPROPRIATIONS**

16 **Subtitle A—Authorizations**

17 **SEC. 101. FISCAL YEAR 2006.**

18 There are authorized to be appropriated to NASA for  
19 fiscal year 2006 \$16,471,050,000, as follows:

20 (1) For Science, Aeronautics, Space and Flight  
21 Support, and Education (including amounts for con-  
22 struction of facilities), \$7,567,200,000 of which—

23 (A) \$5,954,200,000 shall be for Science, of  
24 which—

25 (i) \$1,765,000,000 shall be for Solar  
26 System Exploration;

1 (ii) \$1,928,000,000 shall be for Uni-  
2 verse of which—

3 (I) \$250,000,000 shall be for a  
4 Hubble Space Telescope servicing mis-  
5 sion;

6 (II) \$521,600,000 shall be for  
7 the James Webb Space Telescope; and

8 (III) \$331,500,000 shall be for  
9 Universe Research;

10 (iii) \$2,144,000,000 shall be for  
11 Earth-Sun System of which—

12 (I) \$30,000,000 shall be to aug-  
13 ment funding for the Glory mission;

14 (II) \$25,000,000 shall be to aug-  
15 ment funding for extension of oper-  
16 ational spacecraft missions; and

17 (III) \$25,000,000 shall be to  
18 augment funding for the Global Pre-  
19 cipitation Mission; and

20 (iv) \$117,000,000 shall be for Micro-  
21 gravity Sciences;

22 (B) \$1,057,000,000 shall be for Aero-  
23 nautics;

24 (C) \$376,000,000 shall be for Space and  
25 Flight Support; and

1 (D) \$180,000,000 shall be for Education,  
2 of which \$29,550,000 shall be for the National  
3 Space Grant College and Fellowship Program.

4 (2) For Human Space Flight (including  
5 amounts for construction of facilities),  
6 \$8,873,000,000 of which—

7 (A) \$4,531,000,000 shall be for the Space  
8 Shuttle;

9 (B) \$1,857,000,000 shall be for the Inter-  
10 national Space Station; and

11 (C) \$2,485,000,000 shall be for Human  
12 Exploration, including all robotic space missions  
13 and technology development needed to enable  
14 human exploration beyond the orbital altitude  
15 of the International Space Station.

16 (3) For the Office of Inspector General,  
17 \$32,000,000.

18 **SEC. 102. FISCAL YEAR 2007.**

19 There are authorized to be appropriated to NASA for  
20 fiscal year 2007 \$16,962,000,000, as follows:

21 (1) For Science, Aeronautics, Space and Flight  
22 Support, and Education (including amounts for con-  
23 struction of facilities), \$7,792,100,000, of which—

24 (A) \$6,146,700,000 shall be for Science, of  
25 which—

1 (i) \$2,072,000,000 shall be for Solar  
2 System Exploration;

3 (ii) \$1,848,500,000 shall be for Uni-  
4 verse of which—

5 (I) \$150,000,000 shall be for a  
6 Hubble Space Telescope servicing mis-  
7 sion;

8 (II) \$522,500,000 shall be for  
9 the James Webb Space Telescope; and

10 (III) \$328,500,000 shall be for  
11 Universe Research;

12 (iii) \$2,106,000,000 shall be for  
13 Earth-Sun System, of which \$25,000,000  
14 shall be to augment funding for extension  
15 of operational spacecraft missions; and

16 (iv) \$120,000,000 shall be for Micro-  
17 gravity Sciences;

18 (B) \$1,089,000,000 shall be for Aero-  
19 nautics;

20 (C) \$371,000,000 shall be for Space and  
21 Flight Support; and

22 (D) \$185,000,000 shall be for Education,  
23 of which \$32,000,000 shall be for the National  
24 Space Grant College and Fellowship Program.

1           (2) For Human Space Flight (including  
2       amounts for construction of facilities),  
3       \$9,134,900,000, of which—

4                   (A) \$4,172,000,000 shall be for the Space  
5       Shuttle;

6                   (B) \$1,835,000,000 shall be for the Inter-  
7       national Space Station; and

8                   (C) \$3,127,900,000 shall be for Human  
9       Exploration, including all robotic space missions  
10      and technology development needed to enable  
11      human exploration beyond the orbital altitude  
12      of the International Space Station.

13          (3) For the Office of Inspector General,  
14      \$34,000,000.

15   **SEC. 103. FISCAL YEAR 2008.**

16      There are authorized to be appropriated to NASA for  
17   fiscal year 2008 \$17,306,000,000, as follows:

18           (1) For Science, Aeronautics, Space and Flight,  
19      and Education (including amounts for construction  
20      of facilities), \$8,259,400,000 of which—

21                   (A) \$6,547,500,000 shall be for Science, of  
22      which—

23                           (i) \$2,461,000,000 shall be for Solar  
24      System Exploration;

1 (ii) \$1,806,000,000 shall be for Uni-  
2 verse of which—

3 (I) \$100,000,000 shall be for a  
4 Hubble Space Telescope servicing mis-  
5 sion;

6 (II) \$478,600,000 shall be for  
7 the James Webb Space Telescope; and

8 (III) \$325,800,000 shall be for  
9 Universe Research;

10 (iii) \$2,157,000,000 shall be for  
11 Earth-Sun System, of which \$25,000,000  
12 shall be to augment funding for oper-  
13 ational spacecraft missions; and

14 (iv) \$124,000,000 shall be for Micro-  
15 gravity Sciences;

16 (B) \$1,121,000,000 shall be for Aero-  
17 nautics;

18 (C) \$400,000,000 shall be for Space and  
19 Flight Support; and

20 (D) \$191,000,000 shall be for Education,  
21 of which \$34,000,000 shall be for the National  
22 Space Grant College and Fellowship Program.

23 (2) For Human Space Flight (including  
24 amounts for construction of facilities),  
25 \$9,011,500,000, of which—

1 (A) \$3,866,000,000 shall be for the Space  
2 Shuttle;

3 (B) \$1,791,000,000 shall be for the Inter-  
4 national Space Station; and

5 (C) \$3,354,500,000 shall be for Human  
6 Exploration, including all robotic space missions  
7 and technology development needed to enable  
8 human exploration beyond the orbital altitude  
9 of the International Space Station.

10 (3) For the Office of the Inspector General,  
11 \$35,000,000.

## 12 **Subtitle B—General Provisions**

### 13 **SEC. 111. TECHNOLOGY TRANSFER PROGRAM.**

14 Of each of the overall sums authorized to be appro-  
15 priated by sections 101, 102, and 103, 1.09 percent shall  
16 be reserved for innovative technology transfer partnerships  
17 and other technology transfer initiatives undertaken by  
18 NASA.

### 19 **SEC. 112. PROPORTIONALITY.**

20 If the total amount appropriated for NASA pursuant  
21 to section 101, 102, or 103 is less than the amount au-  
22 thorized under such section, the amounts authorized under  
23 each of the accounts specified in such section shall be re-  
24 duced proportionately.

1 **SEC. 113. LIMITATIONS ON AUTHORITY.**

2       Notwithstanding any other provision of this Act, no  
3 amount appropriated pursuant to this Act may be used  
4 for any program in excess of the amount actually author-  
5 ized for the particular program by section 101, 102, or  
6 103, unless a period of 30 days has passed after the re-  
7 ceipt, by each such Committee, of notice given by the Ad-  
8 ministrator containing a full and complete statement of  
9 the action proposed to be taken and the facts and cir-  
10 cumstances relied upon in support of such a proposed ac-  
11 tion. NASA shall keep the Committee on Commerce,  
12 Science, and Transportation of the Senate and the Com-  
13 mittee on Science of the House of Representatives fully  
14 and currently informed with respect to all activities and  
15 responsibilities within the jurisdiction of those Commit-  
16 tees.

17 **SEC. 114. NOTICE OF REPROGRAMMING.**

18       If any funds authorized by this Act are subject to  
19 a reprogramming action that requires notice to be pro-  
20 vided to the Appropriations Committees of the House of  
21 Representatives and the Senate, notice of such action shall  
22 concurrently be provided to the Committee on Science of  
23 the House of Representatives and the Committee on Com-  
24 merce, Science, and Transportation of the Senate.

1 **SEC. 115. STRUCTURE OF BUDGETARY ACCOUNTS.**

2 Section 313 of the National Aeronautics and Space  
3 Act of 1958 (42 U.S.C. 2459f) is amended to read as fol-  
4 lows:

5 **“SEC. 313. BUDGETARY ACCOUNTS.**

6 “Appropriations for NASA for fiscal year 2007 and  
7 thereafter shall be made in three accounts, ‘Science, Aero-  
8 nautics, Space and Flight Support, and Education’,  
9 ‘Human Space Flight’, and an account for amounts appro-  
10 priated for the necessary expenses of the Office of the In-  
11 spector General. Appropriations shall remain available for  
12 two fiscal years. Each account shall include the planned  
13 full costs of NASA’s activities.”.

14 **SEC. 116. COST GROWTH AND COST OVERRUNS.**

15 (a) SENSE OF CONGRESS.—It is the sense of Con-  
16 gress that cost overruns and cost growth within one of  
17 the accounts specified in sections 101, 102, and 103  
18 should be dealt with by means of adjustments within that  
19 account to the maximum extent practicable, and pro-  
20 tecting funds intended for fundamental and applied re-  
21 search and analysis to the maximum extent practicable.

22 (b) BASELINES AND COST CONTROLS.—

23 (1) CONDITIONS FOR DEVELOPMENT.—

24 (A) IN GENERAL.—NASA shall not enter  
25 into a contract for the development phase of a

1 major program unless the Administrator deter-  
2 mines that—

3 (i) the technical, cost, and schedule  
4 risks of the program are clearly identified  
5 and the program has developed a plan to  
6 manage those risks; and

7 (ii) the program complies with all rel-  
8 evant policies, regulations, and directives  
9 of NASA.

10 (B) REPORT.—The Administrator shall  
11 transmit a report describing the basis for the  
12 determination required under subparagraph (A)  
13 to the Committee on Science of the House of  
14 Representatives and the Committee on Com-  
15 merce, Science, and Transportation of the Sen-  
16 ate at least 30 days before entering into a con-  
17 tract for development under a major program.

18 (C) NONDELEGATION.—The Administrator  
19 may not delegate the determination requirement  
20 under this paragraph.

21 (2) MAJOR PROGRAM ANNUAL REPORTS.—

22 (A) REQUIREMENT.—Not later than Feb-  
23 ruary 15 of each year following the date of en-  
24 actment of this Act, the Administrator shall  
25 transmit to the Committee on Science of the

1 House of Representatives and the Committee  
2 on Commerce, Science, and Transportation of  
3 the Senate a report on each major program for  
4 which the Administration proposes to expend  
5 funds in the subsequent fiscal year. Reports  
6 under this subparagraph shall be known as  
7 Major Program Annual Reports.

8 (B) BASELINE REPORT.—The first Major  
9 Program Annual Report for each major pro-  
10 gram shall include a Baseline Report that shall,  
11 at a minimum, include—

12 (i) the purposes of the program and  
13 key technical characteristics necessary to  
14 fulfill those purposes;

15 (ii) an estimate of the life-cycle cost  
16 for the program, with a detailed breakout  
17 of the development cost and an estimate of  
18 the annual costs until the development is  
19 completed;

20 (iii) the schedule for the development,  
21 including key program milestones; and

22 (iv) the name of the person respon-  
23 sible for making notifications under para-  
24 graph (3), who shall be an individual

1           whose primary responsibility is overseeing  
2           the program.

3           (C) INFORMATION UPDATES.—For major  
4           programs with respect to which a Baseline Re-  
5           port has been previously submitted, each subse-  
6           quent Major Program Annual Report shall de-  
7           scribe any changes to the information that had  
8           been provided in the Baseline Report, and the  
9           reasons for those changes.

10          (3) NOTIFICATION.—

11           (A) REQUIREMENT.—The individual iden-  
12           tified under paragraph (2)(B)(iv) shall imme-  
13           diately notify the Administrator any time that  
14           individual has reasonable cause to believe that,  
15           for the major program for which he or she is  
16           responsible—

17                   (i) the development cost of the pro-  
18                   gram is likely to exceed the estimate pro-  
19                   vided in the Baseline Report of the pro-  
20                   gram by 15 percent or more; or

21                   (ii) a milestone of the program is like-  
22                   ly to be delayed by 6 months or more from  
23                   the date provided for it in the Baseline Re-  
24                   port of the program.

1 (B) REASONS.—Not later than 7 days  
2 after the notification required under subpara-  
3 graph (A), the individual identified under para-  
4 graph (2)(B)(iv) shall transmit to the Adminis-  
5 trator a written notification explaining the rea-  
6 sons for the change in the cost or milestone of  
7 the program for which notification was provided  
8 under subparagraph (A).

9 (C) NOTIFICATION OF CONGRESS.—Not  
10 later than 5 days after the Administrator re-  
11 ceives a written notification under subpara-  
12 graph (B), the Administrator shall transmit the  
13 notification to the Committee on Science of the  
14 House of Representatives and the Committee  
15 on Commerce, Science, and Transportation of  
16 the Senate.

17 (4) FIFTEEN PERCENT THRESHOLD.—Not later  
18 than 30 days after receiving a written notification  
19 under paragraph (3)(B), the Administrator shall de-  
20 termine whether the development cost of the pro-  
21 gram is likely to exceed the estimate provided in the  
22 Baseline Report of the program by 15 percent or  
23 more, or whether a milestone is likely to be delayed  
24 by 6 months or more. If the determination is affirm-  
25 ative, the Administrator shall—

1 (A) transmit to the Committee on Science  
2 of the House of Representatives and the Com-  
3 mittee on Commerce, Science, and Transpor-  
4 tation of the Senate, not later than 14 days  
5 after making the determination, a report that  
6 includes—

7 (i) a description of the increase in  
8 cost or delay in schedule and a detailed ex-  
9 planation for the increase or delay;

10 (ii) a description of actions taken or  
11 proposed to be taken in response to the  
12 cost increase or delay; and

13 (iii) a description of any impacts the  
14 cost increase or schedule delay will have on  
15 any other program within the Administra-  
16 tion; and

17 (B) if the Administrator intends to con-  
18 tinue with the program, promptly initiate an  
19 analysis of the program, which shall include, at  
20 a minimum—

21 (i) the projected cost and schedule for  
22 completing the program if current require-  
23 ments of the program are not modified;

24 (ii) the projected cost and the sched-  
25 ule for completing the program after insti-

tuting the actions described under subparagraph (A)(ii); and

(iii) a description of, and the projected cost and schedule for, a broad range of alternatives to the program.

The Administration shall complete an analysis initiated under subparagraph (B) not later than 6 months after the Administrator makes a determination under this paragraph. The Administrator shall transmit the analysis to the Committee on Science of the House of Representatives and Committee on Commerce, Science, and Transportation of the Senate not later than 30 days after its completion.

(5) DEFINITIONS.—For the purposes of this subsection—

(A) the term “development” means the phase of a program following the formulation phase and beginning with the approval to proceed to implementation, as defined in the Administration’s Procedural Requirements 7120.5c, dated March 22, 2005;

(B) the term “development cost” means the total of all costs, including construction of facilities and civil servant costs, from the period beginning with the approval to proceed to im-

1           plementation through the achievement of oper-  
2           ational readiness, without regard to funding  
3           source or management control, for the life of  
4           the program;

5           (C) the term “life-cycle cost” means the  
6           total of the direct, indirect, recurring, and non-  
7           recurring costs, including the construction of  
8           facilities and civil servant costs, and other re-  
9           lated expenses incurred or estimated to be in-  
10          curred in the design, development, verification,  
11          production, operation, maintenance, support,  
12          and retirement of a program over its planned  
13          lifespan, without regard to funding source or  
14          management control; and

15          (D) the term “major program” means an  
16          activity approved to proceed to implementation  
17          that has an estimated life-cycle cost of more  
18          than \$100,000,000.

19 **SEC. 117. EVALUATION CRITERIA FOR BUDGET REQUEST.**

20          It is the sense of the Congress that each budget of  
21          the United States submitted to the Congress after the date  
22          of enactment of this Act should be evaluated for compli-  
23          ance with the findings and priorities established by this  
24          Act and the amendments made by this Act.

1 **SEC. 118. OFFICIAL REPRESENTATIONAL FUND.**

2       Amounts appropriated pursuant to paragraphs (1)  
3 and (2) of section 101 may be used, but not to exceed  
4 a total of \$70,000, for official reception and representa-  
5 tion expenses.

6 **SEC. 119. SAFETY MANAGEMENT.**

7       Section 6 of the National Aeronautics and Space Ad-  
8 ministration Authorization Act, 1968 (42 U.S.C. 2477) is  
9 amended—

10           (1) by inserting “(a) IN GENERAL.—” before  
11       “‘There is hereby”;

12           (2) by striking “plans referred to it” and in-  
13       serting “plans referred to it, including evaluating the  
14       National Aeronautics and Space Administration’s  
15       compliance with the return-to-flight and continue-to-  
16       fly recommendations of the Columbia Accident In-  
17       vestigation Board,”;

18           (3) by inserting “and the Congress” after “ad-  
19       vise the Administrator”;

20           (4) by striking “and with respect to the ade-  
21       quacy of proposed or existing safety standards and  
22       shall” and inserting “, with respect to the adequacy  
23       of proposed or existing safety standards, and with  
24       respect to management and culture. The Panel shall  
25       also”; and

26           (5) by adding at the end the following:

1       “(b) ANNUAL REPORT.—The Panel shall submit an  
 2 annual report to the Administrator and to the Congress.  
 3 In the first annual report submitted after the date of en-  
 4 actment of the National Aeronautics and Space Adminis-  
 5 tration Authorization Act of 2005, the Panel shall include  
 6 an evaluation of NASA’s safety management culture.

7       “(c) SENSE OF THE CONGRESS.—It is the sense of  
 8 the Congress that the Administrator should—

9               “(1) ensure that NASA employees can raise  
 10 safety concerns without fear of reprisal;

11               “(2) continue to follow the recommendations of  
 12 the Columbia Accident Investigation Board for safe-  
 13 ly returning to flight and continuing to fly the Space  
 14 Shuttle; and

15               “(3) continue to inform the Congress from time  
 16 to time of NASA’s progress in meeting those rec-  
 17 ommendations.”.

18 **SEC. 120. LESSONS LEARNED AND BEST PRACTICES.**

19       “(a) IN GENERAL.—The Administrator shall provide  
 20 an implementation plan describing NASA’s approach for  
 21 obtaining, implementing, and sharing lessons learned and  
 22 best practices for its major programs and projects not  
 23 later than 180 days after the date of enactment of this  
 24 Act. The implementation plan shall be updated and main-  
 25 tained to ensure that it is current and consistent with the

1 burgeoning culture of learning and safety that is emerging  
 2 at NASA.

3 (b) REQUIRED CONTENT.—The implementation plan  
 4 shall contain at a minimum the lessons learned and best  
 5 practices requirements for NASA, the organizations or po-  
 6 sitions responsible for enforcement of the requirements,  
 7 the reporting structure, and the objective performance  
 8 measures indicating the effectiveness of the activity.

9 (c) INCENTIVES.—The Administrator shall provide  
 10 incentives to encourage sharing and implementation of les-  
 11 sons learned and best practices by employees, projects,  
 12 and programs, as well as penalties for programs and  
 13 projects that are determined not to have demonstrated use  
 14 of those resources.

## 15 **TITLE II—SCIENCE**

### 16 **Subtitle A—General Provisions**

#### 17 **SEC. 201. PRIORITIZATION OF SCIENCE PROJECTS AND AC-** 18 **TIVITIES.**

19 (a) IN GENERAL.—The Administrator shall—

20 (1) conduct a rich and vigorous set of science  
 21 activities aimed at better comprehension of the uni-  
 22 verse, solar system, and Earth, as well as improving  
 23 our understanding of the fundamental physical and  
 24 biological sciences;

1           (2) ensure that the various areas within  
2       NASA's science portfolio are developed and main-  
3       tained in a balanced and healthy manner; and

4           (3) determine priorities for each discipline in  
5       the Science account through consultation with the  
6       National Academies and based on the results of  
7       studies performed by the National Academies, which,  
8       at a minimum, shall set forth priorities within each  
9       discipline for the subsequent decade.

10       (b) REPORT.—Not later than 1 year after the date  
11   of enactment of this Act, the Administrator shall transmit  
12   to the Committee on Commerce, Science, and Transpor-  
13   tation of the Senate and the Committee on Science of the  
14   House of Representatives a report detailing—

15           (1) the findings and actions taken on NASA's  
16       assessment of the balance within its science portfolio  
17       and any efforts to adjust that balance among the  
18       major program areas; and

19           (2) the priorities determined for each discipline.

20   **SEC. 202. PERFORMANCE ASSESSMENTS.**

21       (a) IN GENERAL.—Performance of each discipline in  
22   the Science account of NASA shall be reviewed and as-  
23   sessed by the National Academies at 5-year intervals.

24       (b) REPORTS.—Not later than 1 year after the date  
25   of enactment of this Act, and every 5 years thereafter,

1 the Administrator shall transmit a report to the Com-  
2 mittee on Commerce, Science, and Transportation of the  
3 Senate and the Committee on Science of the House of  
4 Representatives—

5 (1) setting forth in detail the results of the ex-  
6 ternal review under subsection (a);

7 (2) setting forth in detail actions taken by  
8 NASA in response to that external review; and

9 (3) including a summary of findings and rec-  
10 ommendations from any other external reviews of  
11 NASA's science mission priorities and programs.

12 **SEC. 203. STATUS REPORT ON HUBBLE SPACE TELESCOPE**  
13 **SERVICING MISSION.**

14 It is the sense of the Congress that the Hubble Space  
15 Telescope is an extraordinary instrument that has pro-  
16 vided, and should continue to provide, with answers to pro-  
17 found scientific questions. In accordance with the rec-  
18 ommendations of the National Academy of Sciences, all  
19 appropriate efforts should be expended to complete the  
20 Space Shuttle servicing mission. Upon successful comple-  
21 tion of the planned return-to-flight schedule of the Space  
22 Shuttle, the schedule for a Space Shuttle servicing mission  
23 to the Hubble Space Telescope shall be determined, unless  
24 such a mission would compromise astronaut safety. Not  
25 later than 60 days after the landing of the second Space

1 Shuttle mission for return-to-flight certification, the Ad-  
2 ministrator shall transmit to the Committee on Commerce,  
3 Science, and Transportation of the Senate and the Com-  
4 mittee on Science of the House of Representatives a status  
5 report on plans for a Hubble Space Telescope servicing  
6 mission.

7 **SEC. 204. FUTURE OF THE DEEP SPACE NETWORK.**

8 (a) IN GENERAL.—In view of the importance of the  
9 Deep Space Network to the successful conduct of inter-  
10 planetary spacecraft missions, the Administrator shall en-  
11 sure that the capabilities of the Deep Space Network are  
12 maintained and upgraded as appropriate.

13 (b) REPORT.—Not later than 180 days after the date  
14 of enactment of this Act, the Administrator shall transmit  
15 a report to the Committee on Commerce, Science, and  
16 Transportation of the Senate and the Committee on  
17 Science of the House of Representatives that contains the  
18 following:

19 (1) Projected Deep Space Network require-  
20 ments for the next decade, including those in sup-  
21 port of human space exploration missions.

22 (2) Upgrades needed to support the require-  
23 ments identified in subsection (a).

24 (3) Cost estimates for the maintenance of exist-  
25 ing Deep Space Network capabilities.

1           (4) Cost estimates and schedules for the up-  
2           grades described in subsection (a).

3 **SEC. 205. EARTH OBSERVING SYSTEM.**

4           (a) IN GENERAL.—Not later than 6 months after the  
5   date of enactment of this Act, the Administrator, in con-  
6   sultation with the Administrator of the National Oceanic  
7   and Atmospheric Administration and the Director of the  
8   United States Geological Survey, shall submit a plan to  
9   the Committee on Commerce, Science, and Transportation  
10   of the Senate and the Committee on Science of the House  
11   of Representatives to ensure the long-term vitality of the  
12   Earth observing system at NASA.

13          (b) PLAN REQUIREMENTS.—The plan shall—

14           (1) address such issues as—

15                (A) out-year budgetary projections;

16                (B) technical requirements for the system;

17           and

18                (C) integration into the Global Earth Ob-  
19   serving System of Systems; and

20          (2) evaluate—

21                (A) the need to proceed with any NASA  
22   missions that have been delayed or canceled;

23                (B) plans for transferring needed capabili-  
24   ties from some canceled or descope missions to

1 the National Polar-Orbiting Environmental Sat-  
 2 ellite System;

3 (C) the technical base for exploratory  
 4 Earth observing systems, including new satellite  
 5 architectures and instruments that enable glob-  
 6 al coverage, all-weather, day and night imaging  
 7 of the Earth's surface features;

8 (D) the need to strengthen research and  
 9 analysis programs; and

10 (E) the need to strengthen the approach to  
 11 obtaining important climate observations and  
 12 data records.

13 (c) EARTH OBSERVING SYSTEM DEFINED.—In this  
 14 section, the term “Earth observing system” means the se-  
 15 ries of satellites, a science component, and a data system  
 16 for long-term global observations of the land surface, bio-  
 17 sphere, solid Earth, atmosphere, and oceans.

18 **SEC. 206. INDEPENDENT ASSESSMENT OF LANDSAT-**  
 19 **NPOESS INTEGRATED MISSION.**

20 (a) ASSESSMENT.—In view of the importance of en-  
 21 suring continuity of Landsat data and in view of the chal-  
 22 lenges facing the National Polar-Orbiting Environmental  
 23 Satellite System program, the Administrator shall seek an  
 24 independent assessment of the costs as well as the tech-  
 25 nical, cost, and schedule risks associated with incor-

porating the Landsat instrument on the first National Polar-Orbiting Environmental Satellite System spacecraft versus undertaking a dedicated Landsat data “gap-filler” mission followed by the incorporation of the Landsat instrument on the second National Polar-Orbiting Environmental Satellite System spacecraft. The assessment shall also include an evaluation of the budgetary requirements of each of the options under consideration.

(b) REPORT.—The Administrator shall transmit the independent assessment to the Committee on Commerce, Science, and Technology of the Senate and the Committee on Science of the House of Representatives not later than 180 days after the date of enactment of this Act.

**SEC. 207. ASSESSMENT OF SCIENCE MISSION EXTENSIONS.**

(a) ASSESSMENT.—The Administrator shall carry out annual termination reviews within each of the Science disciplines to assess the cost and benefits of extending the date of the termination of data collection for those missions which are beyond their primary goals. In addition:

(1) Not later than 60 days after the date of enactment of this Act, the Administrator shall carry out such an assessment for the following missions: FAST, TIMED, Cluster, Wind, Geotail, Polar, TRACE, Ulysses, and Voyager.

1           (2) For those missions that have an operational  
2           component, the National Oceanic and Atmospheric  
3           Administration shall be consulted and the potential  
4           benefits of instruments on missions which are be-  
5           yond their primary goals taken into account.

6           (b) REPORT.—Not later than 30 days after com-  
7           pleting the assessments required by subsection (a)(1), the  
8           Administrator shall transmit a report on the assessment  
9           to the Committee on Commerce, Science, and Transpor-  
10          tation of the Senate and the Committee on Science of the  
11          House of Representatives.

12   **SEC. 208. MICROGRAVITY RESEARCH.**

13          (a) IN GENERAL.—The Administrator shall—

14               (1) not later than 60 days after the date of en-  
15               actment of this Act, provide to the Committee on  
16               Commerce, Science, and Transportation of the Sen-  
17               ate and the Committee on Science of the House of  
18               Representatives an assessment of microgravity re-  
19               search, including biomedical and life science re-  
20               search, planned for implementation aboard the ISS  
21               that includes the identification of research which can  
22               be performed in ground-based facilities and then  
23               validated in space;

24               (2) ensure the capacity to support ground-based  
25               research leading to space-based basic and applied

1 scientific research in a variety of disciplines with po-  
2 tential direct national benefits and applications that  
3 can advance significantly from the uniqueness of  
4 microgravity and the space environment;

5 (3) restore and protect potential basic, applied,  
6 and commercial ISS research activities such as mo-  
7 lecular crystal growth, animal research, basic fluid  
8 physics, combustion research, cellular biotechnology,  
9 low temperature physics, and cellular research at a  
10 level which will sustain the existing scientific exper-  
11 tise and research capabilities;

12 (4) establish prioritization and research mani-  
13 festing processes by which ISS resources will be allo-  
14 cated to maintain a balanced research portfolio  
15 wherein fundamental and commercial research that  
16 do not directly support NASA's human exploration  
17 program is afforded a minimum of 25 percent of  
18 ISS research resources; and

19 (5) not later than 1 year after the date of en-  
20 actment of this Act, develop a research plan that will  
21 demonstrate the process by which NASA will evolve  
22 the ISS research portfolio in a manner consistent  
23 with the planned growth and evolution of ISS on-  
24 orbit capabilities and transportation capabilities to  
25 and from the ISS.

1 (b) MAINTENANCE OF ON-ORBIT ANALYTICAL CAPA-  
 2 BILITIES.—The Administrator shall ensure that on-orbit  
 3 analytical capabilities to support diagnostic human re-  
 4 search, as well as on-orbit characterization of molecular  
 5 crystal growth, cellular research, and other research prod-  
 6 ucts and results are developed and maintained, as an al-  
 7 ternative to Earth-based analysis requiring the capability  
 8 of returning research products to Earth.

9 (c) ASSESSMENT OF POTENTIAL SCIENTIFIC  
 10 USES.—The Administrator shall assess further potential  
 11 scientific uses of the ISS for other applications, such as  
 12 technology development, development of manufacturing  
 13 processes, Earth observation and characterization, and as-  
 14 tronomical observations.

## 15 **Subtitle B—Remote Sensing**

### 16 **SEC. 211. DEFINITIONS.**

17 In this subtitle—

18 (1) the term “geospatial information” means  
 19 knowledge of the nature and distribution of physical  
 20 and cultural features on the landscape based on  
 21 analysis of data from airborne or spaceborne plat-  
 22 forms or other types and sources of data;

23 (2) the term “high resolution” means resolution  
 24 better than five meters; and

1           (3) the term “institution of higher education”  
2       has the meaning given that term in section 101(a)  
3       of the Higher Education Act of 1965 (20 U.S.C.  
4       1001(a)).

5   **SEC. 212. PILOT PROJECTS TO ENCOURAGE PUBLIC SEC-**  
6                           **TOR APPLICATIONS.**

7       (a) IN GENERAL.—The Administrator shall establish  
8   a program of grants for competitively awarded pilot  
9   projects to explore the integrated use of sources of remote  
10   sensing and other geospatial information to address State,  
11   local, regional, and tribal agency needs.

12       (b) PREFERRED PROJECTS.—In awarding grants  
13   under this section, the Administrator shall give preference  
14   to projects that—

15           (1) make use of commercial data sets, including  
16       high resolution commercial satellite imagery and de-  
17       rived satellite data products, existing public data  
18       sets where commercial data sets are not available or  
19       applicable, or the fusion of such data sets;

20           (2) integrate multiple sources of geospatial in-  
21       formation, such as geographic information system  
22       data, satellite-provided positioning data, and re-  
23       motely sensed data, in innovative ways;

24           (3) include funds or in-kind contributions from  
25       non-Federal sources;

1           (4) involve the participation of commercial enti-  
2           ties that process raw or lightly processed data, often  
3           merging that data with other geospatial information,  
4           to create data products that have significant value  
5           added to the original data; and

6           (5) taken together demonstrate as diverse a set  
7           of public sector applications as possible.

8           (c) OPPORTUNITIES.—In carrying out this section,  
9           the Administrator shall seek opportunities to assist—

10           (1) in the development of commercial applica-  
11           tions potentially available from the remote sensing  
12           industry; and

13           (2) State, local, regional, and tribal agencies in  
14           applying remote sensing and other geospatial infor-  
15           mation technologies for growth management.

16           (d) DURATION.—Assistance for a pilot project under  
17           subsection (a) shall be provided for a period not to exceed  
18           3 years.

19           (e) REPORT.—Each recipient of a grant under sub-  
20           section (a) shall transmit a report to the Administrator  
21           on the results of the pilot project within 180 days of the  
22           completion of that project.

23           (f) WORKSHOP.—Each recipient of a grant under  
24           subsection (a) shall, not later than 180 days after the com-  
25           pletion of the pilot project, conduct at least one workshop

1 for potential users to disseminate the lessons learned from  
2 the pilot project as widely as feasible.

3 (g) REGULATIONS.—The Administrator shall issue  
4 regulations establishing application, selection, and imple-  
5 mentation procedures for pilot projects, and guidelines for  
6 reports and workshops required by this section.

7 **SEC. 213. PROGRAM EVALUATION.**

8 (a) ADVISORY COMMITTEE.—The Administrator  
9 shall establish an advisory committee, consisting of indi-  
10 viduals with appropriate expertise in State, local, regional,  
11 and tribal agencies, the university research community,  
12 and the remote sensing and other geospatial information  
13 industry, to monitor the program established under sec-  
14 tion 212. The advisory committee shall consult with the  
15 Federal Geographic Data Committee and other appro-  
16 priate industry representatives and organizations. Not-  
17 withstanding section 14 of the Federal Advisory Com-  
18 mittee Act, the advisory committee established under this  
19 subsection shall remain in effect until the termination of  
20 the program under section 212.

21 (b) EFFECTIVENESS EVALUATION.—Not later than  
22 December 31, 2009, the Administrator shall transmit to  
23 the Congress an evaluation of the effectiveness of the pro-  
24 gram established under section 212 in exploring and pro-  
25 moting the integrated use of sources of remote sensing

1 and other geospatial information to address State, local,  
 2 regional, and tribal agency needs. Such evaluation shall  
 3 have been conducted by an independent entity.

4 **SEC. 214. DATA AVAILABILITY.**

5 The Administrator shall ensure that the results of  
 6 each of the pilot projects completed under section 212  
 7 shall be retrievable through an electronic, Internet-acces-  
 8 sible database.

9 **SEC. 215. EDUCATION.**

10 The Administrator shall establish an educational out-  
 11 reach program to increase awareness at institutions of  
 12 higher education and State, local, regional, and tribal  
 13 agencies of the potential applications of remote sensing  
 14 and other geospatial information.

15 **Subtitle C—George E. Brown, Jr.**  
 16 **Near-Earth Object Survey**

17 **SEC. 221. GEORGE E. BROWN, JR. NEAR-EARTH OBJECT**  
 18 **SURVEY.**

19 (a) **SHORT TITLE.**—This section may be cited as the  
 20 “George E. Brown, Jr. Near-Earth Object Survey Act”.

21 (b) **FINDINGS.**—The Congress makes the following  
 22 findings:

23 (1) Near-Earth objects pose a serious and cred-  
 24 ible threat to humankind, as many scientists believe  
 25 that a major asteroid or comet was responsible for

1 the mass extinction of the majority of the Earth's  
2 species, including the dinosaurs, nearly 65,000,000  
3 years ago.

4 (2) Similar objects have struck the Earth or  
5 passed through the Earth's atmosphere several times  
6 in the Earth's history and pose a similar threat in  
7 the future.

8 (3) Several such near-Earth objects have only  
9 been discovered within days of the objects' closest  
10 approach to Earth, and recent discoveries of such  
11 large objects indicate that many large near-Earth  
12 objects remain undiscovered.

13 (4) The efforts taken to date by NASA for de-  
14 tecting and characterizing the hazards of near-Earth  
15 objects are not sufficient to fully determine the  
16 threat posed by such objects to cause widespread de-  
17 struction and loss of life.

18 (c) DEFINITIONS.—For purposes of this section the  
19 term “near-Earth object” means an asteroid or comet with  
20 a perihelion distance of less than 1.3 Astronomical Units  
21 from the Sun.

22 (d) NEAR-EARTH OBJECT SURVEY.—

23 (1) SURVEY PROGRAM.—The Administrator  
24 shall plan, develop, and implement a Near-Earth  
25 Object Survey program to detect, track, catalogue,

1       and characterize the physical characteristics of near-  
2       Earth objects equal to or greater than 100 meters  
3       in diameter in order to assess the threat of such  
4       near-Earth objects to the Earth. It shall be the goal  
5       of the Survey program to achieve 90 percent comple-  
6       tion of its near-Earth object catalogue (based on sta-  
7       tistically predicted populations of near-Earth ob-  
8       jects) within 15 years after the date of enactment of  
9       this Act.

10           (2) AMENDMENTS.—Section 102 of the Na-  
11       tional Aeronautics and Space Act of 1958 (42  
12       U.S.C. 2451) is amended—

13                   (A) by redesignating subsection (g) as sub-  
14       section (h);

15                   (B) by inserting after subsection (f) the  
16       following new subsection:

17       “(g) The Congress declares that the general welfare  
18       and security of the United States require that the unique  
19       competence of the National Aeronautics and Space Ad-  
20       ministration be directed to detecting, tracking, cata-  
21       loguing, and characterizing near-Earth asteroids and com-  
22       ets in order to provide warning and mitigation of the po-  
23       tential hazard of such near-Earth objects to the Earth.”;  
24       and

1 (C) in subsection (h), as so redesignated  
2 by subparagraph (A) of this paragraph, by  
3 striking “and (f)” and inserting “(f), and (g)”.

4 (3) ANNUAL REPORT.—The Administrator shall  
5 transmit to the Congress, not later than February  
6 28 of each of the next 5 years beginning after the  
7 date of enactment of this Act, a report that provides  
8 the following:

9 (A) A summary of all activities taken pur-  
10 suant to paragraph (1) for the previous fiscal  
11 year.

12 (B) A summary of expenditures for all ac-  
13 tivities pursuant to paragraph (1) for the pre-  
14 vious fiscal year.

15 (4) INITIAL REPORT.—The Administrator shall  
16 transmit to Congress not later than 1 year after the  
17 date of enactment of this Act an initial report that  
18 provides the following:

19 (A) An analysis of possible alternatives  
20 that the the Administration may employ to  
21 carry out the Survey program, including  
22 ground-based and space-based alternatives with  
23 technical descriptions.

1 (B) A recommended option and proposed  
2 budget to carry out the Survey program pursu-  
3 ant to the recommended option.

4 (C) An analysis of possible alternatives  
5 that the Administration could employ to divert  
6 an object on a likely collision course with Earth.

## 7 **TITLE III—AERONAUTICS**

### 8 **SEC. 301. DEFINITION.**

9 For purposes of this title, the term “institution of  
10 higher education” has the meaning given that term by sec-  
11 tion 101 of the Higher Education Act of 1965 (20 U.S.C.  
12 1001).

## 13 **Subtitle A—National Policy for** 14 **Aeronautics Research and De-** 15 **velopment**

### 16 **SEC. 311. POLICY.**

17 It shall be the policy of the United States to reaffirm  
18 the National Aeronautics and Space Act of 1958 and its  
19 identification of aeronautical research and development as  
20 a core mission of NASA. Further, it shall be the policy  
21 of the United States to promote aeronautical research and  
22 development that will expand the capacity, ensure the  
23 safety, and increase the efficiency of the Nation’s air  
24 transportation system, promote the security of the Nation,

1 protect the environment, and retain the leadership of the  
2 United States in global aviation.

3       **Subtitle B—NASA Aeronautics**  
4       **Breakthrough Research Initiatives**

5       **SEC. 321. ENVIRONMENTAL AIRCRAFT RESEARCH AND DE-**  
6       **VELOPMENT INITIATIVE.**

7       (a) OBJECTIVE.—The Administrator shall establish  
8 an initiative with the objective of developing, and dem-  
9 onstrating in a relevant environment, within 10 years after  
10 the date of enactment of this Act, technologies to enable  
11 the following commercial aircraft performance characteris-  
12 tics:

13           (1) NOISE.—Noise levels on takeoff and on air-  
14 port approach and landing that do not exceed ambi-  
15 ent noise levels in the absence of flight operations in  
16 the vicinity of airports from which such commercial  
17 aircraft would normally operate.

18           (2) ENERGY CONSUMPTION.—Twenty-five per-  
19 cent reduction in the energy required for medium to  
20 long range flights, compared to aircraft in commer-  
21 cial service as of the date of enactment of this Act.  
22 This reduction may be achieved by a combination of  
23 improvements to—

24                   (A) specific fuel consumption;

25                   (B) lift-to-drag ratio; and

1 (C) structural weight fraction.

2 (3) EMISSIONS.—Nitrogen oxides on take-off  
3 and landing that are reduced by 50 percent relative  
4 to aircraft in commercial service as of the date of  
5 enactment of this Act.

6 (b) IMPLEMENTATION.—Not later than 270 days  
7 after the date of enactment of this Act, the Administrator  
8 shall provide to Congress a plan for the implementation  
9 of the initiative described in subsection (a). Such imple-  
10 mentation plan shall include—

11 (1) technological roadmaps for achieving each  
12 of the performance characteristics specified in sub-  
13 section (a);

14 (2) an estimate of the 10-year funding profile  
15 required to achieve the objective specified in sub-  
16 section (a);

17 (3) a plan for carrying out a formal quantifica-  
18 tion of the estimated costs and benefits of each tech-  
19 nological option selected for development beyond the  
20 initial concept definition phase; and

21 (4) a plan for transferring the technologies to  
22 industry, including the identification of requirements  
23 for technology demonstrations, as appropriate.

24 (c) STUDY.—

1           (1) REQUIREMENT.—The Administrator shall  
2       enter into an arrangement for the National Research  
3       Council to conduct a study to identify and quantify  
4       new markets that would be created, as well as exist-  
5       ing markets that would be expanded, by the incorpo-  
6       ration of the technologies developed pursuant to this  
7       section into future commercial aircraft. The study  
8       shall identify whether any of the performance char-  
9       acteristics specified in subsection (a) would need to  
10      be made more stringent in order to create new mar-  
11      kets or expand existing markets. The National Re-  
12      search Council shall seek input from at least the air-  
13      craft manufacturing industry, academia, and the air-  
14      lines in carrying out the study.

15          (2) REPORT.—A report containing the results  
16      of the study conducted under paragraph (1) shall be  
17      provided to Congress not later than 18 months after  
18      the date of enactment of this Act.

19 **SEC. 322. CIVIL SUPERSONIC TRANSPORT RESEARCH AND**  
20 **DEVELOPMENT INITIATIVE.**

21          (a) OBJECTIVE.—The Administrator shall establish  
22      an initiative with the objective of developing, and dem-  
23      onstrating in a relevant environment, within 20 years after  
24      the date of enactment of this Act, technologies to enable

1 overland flight of supersonic civil transport aircraft with  
2 at least the following performance characteristics:

3 (1) Mach number of at least 1.4.

4 (2) Range of at least 4,000 nautical miles.

5 (3) Payload of at least 24 passengers.

6 (4) Noise levels on takeoff and on airport ap-  
7 proach and landing that meet community noise  
8 standards in place at airports from which such com-  
9 mercial supersonic aircraft would normally operate  
10 at the time the aircraft would enter commercial serv-  
11 ice.

12 (5) Shaped sonic boom signatures sufficiently  
13 low to permit overland flight over populated areas.

14 (6) Nitrogen oxide, carbon dioxide, and water  
15 vapor emissions consistent with regulations likely to  
16 be in effect at the time of this aircraft's introduc-  
17 tion.

18 (b) IMPLEMENTATION.—Not later than 270 days  
19 after the date of enactment of this Act, the Administrator  
20 shall provide to Congress a plan for the implementation  
21 of the initiative described in subsection (a). Such imple-  
22 mentation plan shall include—

23 (1) technological roadmaps for achieving each  
24 of the performance characteristics specified in sub-  
25 section (a);

1           (2) an estimate of the 10-year funding profile  
 2           required to achieve the objective specified in sub-  
 3           section (a);

4           (3) a plan for carrying out a formal quantifica-  
 5           tion of the estimated costs and benefits of each tech-  
 6           nological option selected for development beyond the  
 7           initial concept definition phase;

8           (4) a plan for transferring the technologies to  
 9           industry, including the identification of requirements  
 10          for technology demonstrations, as appropriate;

11          (5) a plan for research to quantify, within 3  
 12          years after the date of enactment of this Act, the  
 13          limits on sonic boom parameters, such as over-  
 14          pressure and rise time, that would be acceptable to  
 15          the general public; and

16          (6) a plan for adjusting the noise reduction re-  
 17          search and development activities as needed to ac-  
 18          commodate changes in community noise standards  
 19          that may occur over the lifetime of the initiative.

20 **SEC. 323. ROTORCRAFT AND OTHER RUNWAY-INDE-**  
 21 **PENDENT AIR VEHICLES RESEARCH AND DE-**  
 22 **VELOPMENT INITIATIVE.**

23          (a) OBJECTIVE.—The Administrator shall establish a  
 24          rotorcraft and other runway-independent air vehicles ini-  
 25          tiative with the objective of developing and demonstrating

1 in a relevant environment, within 10 years after the date  
2 of enactment of this Act, technologies to enable signifi-  
3 cantly safer, quieter, and more environmentally compatible  
4 operation from a wider range of airports under a wider  
5 range of weather conditions than is the case for rotorcraft  
6 and other runway-independent air vehicles in service as  
7 of the date of enactment of this Act.

8 (b) IMPLEMENTATION.—Not later than 270 days  
9 after the date of enactment of this Act, the Administrator  
10 shall provide a plan to the Congress for the implementa-  
11 tion of the initiative described in subsection (a). The im-  
12 plementation plan shall include—

13 (1) a set of performance characteristics, devel-  
14 oped in consultation with the National Research  
15 Council, that shall quantify the objectives specified  
16 in subsection (a);

17 (2) technological roadmaps for achieving each  
18 of the performance characteristics developed under  
19 paragraph (1);

20 (3) an estimate of the 10-year funding profile  
21 required to achieve the objective specified in sub-  
22 section (a);

23 (4) a plan for carrying out a formal quantifica-  
24 tion of the estimated costs and benefits of each tech-

1 nological option selected for development beyond the  
2 initial concept definition phase; and

3 (5) a plan for transferring the technologies to  
4 industry, including the identification of requirements  
5 for technology demonstrations, as appropriate.

6 **SEC. 324. REVIEW.**

7 The Administrator shall enter into an arrangement  
8 with the National Research Council for the review, within  
9 18 months after the date of enactment of this Act, of the  
10 adequacy of the implementation plans provided under sec-  
11 tions 321(b), 322(b), and 323(b) to achieve the objectives  
12 described in sections 321(a), 322(a), and 323(a). In addi-  
13 tion, the Administrator shall enter into an arrangement  
14 with the National Research Council for the review, every  
15 3 years subsequent to the initial review under this section,  
16 of NASA's progress in achieving the objectives described  
17 in sections 321(a), 322(a), and 323(a), including rec-  
18 ommendations for changes to NASA's research and devel-  
19 opment program as needed, as well as recommendations  
20 for changes to the desired performance characteristics as  
21 needed. The results of each review shall be provided to  
22 Congress within 30 days after completion of the review.

1 **Subtitle C—Other NASA Aero-**  
2 **nautics Research and Develop-**  
3 **ment Activities**

4 **SEC. 331. FUNDAMENTAL RESEARCH AND TECHNOLOGY**  
5 **BASE PROGRAM.**

6 (a) OBJECTIVE.—In order to ensure that the Nation  
7 maintains needed capabilities in fundamental areas of  
8 aeronautical research, the Administrator shall establish a  
9 program of long-term fundamental research in aero-  
10 nautical sciences and technologies that is not tied to spe-  
11 cific development projects.

12 (b) ASSESSMENT.—The Administrator shall enter  
13 into an arrangement with the National Research Council  
14 for an assessment of the Nation's future requirements for  
15 fundamental aeronautics research and whether the Nation  
16 will have a skilled research workforce and research facili-  
17 ties commensurate with those requirements. The assess-  
18 ment shall include an identification of any projected gaps,  
19 and recommendations for what steps should be taken by  
20 the Federal Government to eliminate those gaps.

21 (c) REPORT.—The Administrator shall transmit the  
22 assessment, along with NASA's response to the assess-  
23 ment, to Congress not later than 2 years after the date  
24 of enactment of this Act.

1 **SEC. 332. AIRSPACE SYSTEMS RESEARCH.**

2 (a) OBJECTIVE.—The Airspace Systems Research  
3 program shall pursue research and development to enable  
4 revolutionary improvements to and modernization of the  
5 National Airspace System, as well as to enable the intro-  
6 duction of new systems for vehicles that can take advan-  
7 tage of an improved, modern air transportation system.

8 (b) ALIGNMENT.—Not later than 2 years after the  
9 date of enactment of this Act, the Administrator shall  
10 align the projects of the Airspace Systems Research pro-  
11 gram so that they directly support the objectives of the  
12 Joint Planning and Development Office’s Next Generation  
13 Air Transportation System Integrated Plan.

14 **SEC. 333. AVIATION SAFETY AND SECURITY RESEARCH.**

15 (a) OBJECTIVE.—The Aviation Safety and Security  
16 Research program shall pursue research and development  
17 activities that directly address the safety and security  
18 needs of the National Airspace System and the aircraft  
19 that fly in it. The program shall develop prevention, inter-  
20 vention, and mitigation technologies aimed at causal, con-  
21 tributory, or circumstantial factors of aviation accidents.

22 (b) PLAN.—Not later than 1 year after the date of  
23 enactment of this Act, the Administrator shall transmit  
24 to Congress a 5-year prioritized plan for the research to  
25 be conducted within the Aviation Safety and Security Re-  
26 search program. The plan shall be aligned with the objec-

1 tives of the Joint Planning and Development Office's Next  
2 Generation Air Transportation System Integrated Plan.

3 **SEC. 334. ZERO-EMISSIONS AIRCRAFT RESEARCH.**

4 (a) OBJECTIVE.—The Administrator shall establish a  
5 zero-emissions aircraft research program whose objective  
6 shall be to develop and test concepts to enable a hydrogen  
7 fuel cell-powered aircraft that would have no hydrocarbon  
8 or nitrogen oxide emissions into the environment.

9 (b) APPROACH.—The Administrator shall establish a  
10 program of competitively awarded grants available to  
11 teams of researchers that may include the participation  
12 of individuals from universities, industry, and government  
13 for the conduct of this research.

14 **SEC. 335. MARS AIRCRAFT RESEARCH.**

15 (a) OBJECTIVE.—The Administrator shall establish a  
16 Mars Aircraft project whose objective shall be to develop  
17 and test concepts for an uncrewed aircraft that could oper-  
18 ate for sustained periods in the atmosphere of Mars.

19 (b) APPROACH.—The Administrator shall establish a  
20 program of competitively awarded grants available to  
21 teams of researchers that may include the participation  
22 of individuals from universities, industry, and government  
23 for the conduct of this research.

1   **SEC. 336. HYPERSONICS RESEARCH.**

2           (a) OBJECTIVE.—The Administrator shall establish a  
3 hypersonics research program whose objective shall be to  
4 explore the science and technology of hypersonic flight  
5 using air-breathing propulsion concepts, through a mix of  
6 theoretical work, basic and applied research, and develop-  
7 ment of flight research demonstration vehicles.

8           (b) PLAN.—Not later than 1 year after the date of  
9 enactment of this Act, the Administrator shall develop a  
10 10-year hypersonics research plan and shall have that plan  
11 reviewed by the National Research Council. The results  
12 of that review shall be provided to Congress.

13   **SEC. 337. NASA AERONAUTICS SCHOLARSHIPS.**

14           (a) ESTABLISHMENT.—The Administrator shall es-  
15 tablish a program of scholarships for full-time graduate  
16 students who are United States citizens and are enrolled  
17 in, or have been accepted by and have indicated their in-  
18 tention to enroll in, accredited Masters degree programs  
19 in aeronautical engineering at institutions of higher edu-  
20 cation. Each such scholarship shall cover the costs of  
21 room, board, tuition, and fees, and may be provided for  
22 a maximum of 2 years.

23           (b) IMPLEMENTATION.—Not later than 180 days  
24 after the date of enactment of this Act, the Administrator  
25 shall publish regulations governing the scholarship pro-  
26 gram under this section.

1       (c) COOPERATIVE TRAINING OPPORTUNITIES.—Stu-  
2 dents who have been awarded a scholarship under this sec-  
3 tion shall have the opportunity for paid employment at  
4 one of the NASA Centers engaged in aeronautics research  
5 and development during the summer prior to the first year  
6 of the student's Masters program, and between the first  
7 and second year, if applicable.

8       **SEC. 338. AVIATION WEATHER RESEARCH.**

9       The Administrator shall carry out a program of col-  
10 laborative research with the National Oceanic and Atmos-  
11 pheric Administration on convective weather events, with  
12 the goal of significantly improving the reliability of 2-hour  
13 to 6-hour aviation weather forecasts.

14       **SEC. 339. ASSESSMENT OF WAKE TURBULENCE RESEARCH**  
15                               **AND DEVELOPMENT PROGRAM.**

16       (a) ASSESSMENT.—The Administrator shall enter  
17 into an arrangement with the National Research Council  
18 for an assessment of Federal wake turbulence research  
19 and development programs. The assessment shall address  
20 at least the following questions:

21               (1) Are the Federal research and development  
22 goals and objectives well defined?

23               (2) Are there any deficiencies in the Federal re-  
24 search and development goals and objectives?

1           (3) What roles should be played by each of the  
2       relevant Federal agencies, such as NASA, the Fed-  
3       eral Aviation Administration, and the National Oce-  
4       anic and Atmospheric Administration, in wake tur-  
5       bulence research and development?

6       (b) REPORT.—A report containing the results of the  
7       assessment conducted pursuant to subsection (a) shall be  
8       provided to Congress not later than 1 year after the date  
9       of enactment of this Act.

10   **SEC. 340. UNIVERSITY-BASED CENTERS FOR RESEARCH ON**  
11                           **AVIATION TRAINING.**

12       (a) IN GENERAL.—The Administrator shall award  
13       grants to institutions of higher education (or consortia  
14       thereof) to establish one or more Centers for Research on  
15       Aviation Training under cooperative agreements with ap-  
16       propriate NASA Centers.

17       (b) PURPOSE.—The purpose of the Centers shall be  
18       to investigate the impact of new technologies and proce-  
19       dures, particularly those related to the aircraft flight deck  
20       and to the air traffic management functions, on training  
21       requirements for pilots and air traffic controllers.

22       (c) APPLICATION.—An institution of higher edu-  
23       cation (or a consortium of such institutions) seeking fund-  
24       ing under this section shall submit an application to the  
25       Administrator at such time, in such manner, and con-

1 taining such information as the Administrator may re-  
 2 quire, including, at a minimum, a 5-year research plan.

3 (d) AWARD DURATION.—An award made by the Ad-  
 4 ministrator under this section shall be for a period of 5  
 5 years and may be renewed on the basis of—

6 (1) satisfactory performance in meeting the  
 7 goals of the research plan proposed by the Center in  
 8 its application under subsection (c); and

9 (2) other requirements as specified by the Ad-  
 10 ministrator.

## 11 **TITLE IV—HUMAN SPACE** 12 **FLIGHT**

### 13 **SEC. 401. INTERNATIONAL SPACE STATION COMPLETION.**

14 (a) ELEMENTS, CAPABILITIES, AND CONFIGURATION  
 15 CRITERIA.—The Administrator shall ensure that the ISS  
 16 will be able to—

17 (1) fulfill international partner agreements and  
 18 provide a diverse range of research capacity, includ-  
 19 ing a high rate of human biomedical research proto-  
 20 cols, countermeasures for the effects of microgravity,  
 21 applied biotechnologies, technology and exploration  
 22 research, commercial research, fundamental re-  
 23 search, and other priority areas;

24 (2) have a life sciences centrifuge and associ-  
 25 ated holding facilities;

1           (3) have an ability to support crew size of at  
2       least 6 persons;

3           (4) support crew exploration vehicle docking  
4       and automated docking of cargo vehicles or modules  
5       launched by either heavy-lift or commercially-devel-  
6       oped launch vehicles; and

7           (5) be operated at an appropriate risk level.

8       (b) CONTINGENCY PLAN.—The transportation plan  
9   to support ISS shall include contingency options to ensure  
10 sufficient logistics and on-orbit capabilities to support any  
11 potential period during which the Space Shuttle or its fol-  
12 low-on crew and cargo systems is unavailable, and provide  
13 sufficient prepositioning of spares and other supplies need-  
14 ed to accommodate any such hiatus.

15       (c) CERTIFICATION.—Not later than 60 days after  
16 the date of enactment of this Act, and before making any  
17 change in the ISS assembly sequence in effect on the date  
18 of enactment of this Act, the Administrator shall certify  
19 in writing to the Committee on Commerce, Science, and  
20 Transportation of the Senate and the Committee on  
21 Science of the House of Representatives NASA's plan to  
22 meet the requirements of subsections (a) and (b).

23 **SEC. 402. USE OF THE INTERNATIONAL SPACE STATION**  
24 **AND ANNUAL REPORT.**

25       (a) POLICY.—It is the policy of the United States—

1           (1) to ensure diverse and growing utilization of  
2       benefits from the ISS; and

3           (2) to increase commercial utilization and oper-  
4       ations in low-Earth orbit and beyond that are sup-  
5       ported by national and commercial space transpor-  
6       tation capabilities.

7       (b) USE OF INTERNATIONAL SPACE STATION.—The  
8       Administrator shall conduct broadly focused scientific and  
9       exploration research and development activities using the  
10      ISS in a manner consistent with the provisions of this  
11      title, and advance the Nation’s exploration of the Moon  
12      and beyond, using the ISS as a test-bed and outpost for  
13      operations, engineering, and scientific research.

14      (c) REPORTS.—Not later than March 31 of each year  
15      the Administrator shall transmit a report to the Com-  
16      mittee on Commerce, Science, and Transportation of the  
17      Senate and the Committee on Science of the House of  
18      Representatives on the use of the ISS as provided in sub-  
19      section (b), with implementation milestones and associated  
20      results.

21      **SEC. 403. INTERNATIONAL SPACE STATION COST CAP.**

22      Section 202 of the National Aeronautics and Space  
23      Administration Authorization Act of 2000 (42 U.S.C.  
24      2451 note) is repealed.

1 **SEC. 404. SPACE SHUTTLE TRANSITION.**

2 (a) IN GENERAL.—The Administrator is strongly en-  
3 couraged to pursue the goal of retiring the Space Shuttle  
4 in 2010 and initiating flight operations of the Crew Explo-  
5 ration Vehicle. However, in view of the detrimental effects  
6 of a gap in human access to space by the United States,  
7 the Administrator may not retire all of the Space Shuttle  
8 orbiters until a replacement human-rated spacecraft sys-  
9 tem that can take humans into Earth orbit and return  
10 them safely has entered operational service, unless the Ad-  
11 ministrator determines that the Space Shuttle is unsafe  
12 for continued flight operations.

13 (b) REPORT.—The Administrator shall transmit a re-  
14 port to the Committee on Commerce, Science, and Trans-  
15 portation of the Senate and the Committee on Science of  
16 the House of Representatives containing a detailed and  
17 comprehensive Space Shuttle transition plan that includes  
18 any necessary recertification, including requirements, as-  
19 sumptions, and milestones, in order to utilize the Space  
20 Shuttle orbiter beyond calendar year 2010.

21 (c) CONTRACT TERMINATIONS; VENDOR REPLACE-  
22 MENTS.—The Administrator may not terminate any con-  
23 tracts nor replace any vendors associated with the Space  
24 Shuttle until 120 days after the Administrator has trans-  
25 mitted the report required by subsection (b).

1 **SEC. 405. HUMAN EXPLORATION PRIORITIES.**

2 (a) IN GENERAL.—In view of the limited resources  
3 likely to be available for human exploration over the re-  
4 mainder of the decade, the Administrator shall—

5 (1) construct an architecture and implementa-  
6 tion plan for NASA’s human exploration program  
7 that is not critically dependent on the achievement  
8 of milestones by fixed dates; and

9 (2) determine the relative priority of each of the  
10 potential elements of NASA’s implementation plan  
11 for its human exploration program in case funding  
12 shortfalls or cost growth necessitate the adjustment  
13 of NASA’s implementation plan.

14 (b) PRIORITIES.—Development of a Crew Explo-  
15 ration Vehicle with a robust crew escape system, develop-  
16 ment of a launch system for the Crew Exploration Vehicle,  
17 and definition of an overall architecture and prioritized  
18 implementation plan shall be the highest priorities of the  
19 human exploration program over the period governed by  
20 this Act.

21 (c) REPORT.—Not later than 180 days after the date  
22 of enactment of this Act, the Administrator shall transmit  
23 to the Committee on Commerce, Science, and Transpor-  
24 tation of the Senate and the Committee on Science of the  
25 House of Representatives—

1           (1) an exploration architecture and prioritized  
2           implementation plan and schedule for NASA's  
3           human exploration program;

4           (2) the requirements, cost estimates, and sched-  
5           ules for the Crew Exploration Vehicle and its associ-  
6           ated launch vehicle; and

7           (3) cost estimates for each of the elements of  
8           the prioritized implementation plan and sensitivity  
9           analyses of the cost impacts of schedule adjust-  
10          ments.

11 **SEC. 406. DEVELOPMENT OF EXPANDED PERMANENT**  
12 **HUMAN PRESENCE BEYOND LOW-EARTH**  
13 **ORBIT.**

14       (a) IN GENERAL.—As part of the programs author-  
15 ized under the National Aeronautics and Space Act of  
16 1958 (42 U.S.C. 2451 et seq.), the Administrator shall  
17 establish a program with the goal of developing a perma-  
18 nently sustained human presence on the Moon, in tandem  
19 with an extensive precursor program, to support scientific  
20 pursuits, and as a stepping-stone to future exploration of  
21 Mars. The Administrator is further authorized to develop  
22 and conduct commercial and international collaborations  
23 in pursuit of these goals, as appropriate.

24       (b) REQUIREMENTS.—In carrying out this section,  
25 the Administrator shall—

1           (1) implement an effective exploration tech-  
2           nology program that is focused around the key needs  
3           to support lunar human and robotic operations, in-  
4           cluding—

5                   (A) not later than 180 days after the date  
6                   of enactment of this Act, providing to the Com-  
7                   mittee on Science of the House of Representa-  
8                   tives and the Committee on Commerce, Science,  
9                   and Transportation of the Senate an Explo-  
10                  ration Critical Technologies List that will in-  
11                  clude those technology areas identified to re-  
12                  quire significant advancements in order for  
13                  NASA to achieve the Exploration Vision as ar-  
14                  ticulated by the President and contained in  
15                  NASA’s Strategic Plan for Lunar and Mars ex-  
16                  ploration; and

17                  (B) to ensure that the capabilities inherent  
18                  within the United States research universities  
19                  and United States nonaerospace industries are  
20                  actively sought and stimulated in support of ex-  
21                  ploration, not later than 180 days after the  
22                  date of enactment of this Act, submitting to the  
23                  Committee on Science of the House of Rep-  
24                  resentatives and the Committee on Commerce,  
25                  Science, and Transportation of the Senate a

1 plan for establishing a program of university  
2 led university and industry partnerships in each  
3 of the areas identified in the Exploration Critical Technologies List provided under subparagraph (A);

4  
5  
6 (2) as part of NASA's annual budget submission, submit to the Congress the detailed mission,  
7 schedule, and budget for key lunar mission-enabling  
8 technology areas, including areas for possible innovative governmental and commercial activities and  
9 partnerships;  
10  
11

12 (3) as part of NASA's annual budget submission, submit to the Congress a plan for NASA's  
13 lunar robotic precursor and technology programs, including current and planned technology investments  
14 and scientific research that support the lunar program;  
15  
16  
17 and

18 (4) conduct an intensive in-situ resource utilization technology program in order to develop the capability to use space resources to increase independence from Earth, and sustain exploration beyond  
19  
20  
21  
22 low-Earth orbit.

1 **SEC. 407. GROUND-BASED EXPLORATION ANALOG CAPA-**  
2 **BILITIES.**

3 (a) IN GENERAL.—The Administrator shall evaluate  
4 the costs and benefits of establishing ground-based analog  
5 capabilities in United States locations and elsewhere in the  
6 world in order to assist in the development of technologies  
7 and operational techniques for lunar operations, life sup-  
8 port, and in-situ resource utilization experience and capa-  
9 bilities.

10 (b) LOCATIONS.—If the Administrator determines  
11 that the establishment of ground-based analog capabilities  
12 will help advance the United States human exploration  
13 program, the Administrator shall determine which loca-  
14 tions would offer the most promise for the establishment  
15 of such ground-based exploration analogs.

16 (c) INVOLVEMENT OF LOCAL POPULATIONS; PRI-  
17 VATE SECTOR PARTNERS.—In carrying out this section,  
18 the Administrator shall involve local populations, aca-  
19 demia, and industrial partners as much as possible to en-  
20 sure that ground-based benefits and applications are en-  
21 couraged and developed.

22 **SEC. 408. GAO ASSESSMENT OF FEASIBILITY OF MOON AND**  
23 **MARS EXPLORATION MISSIONS.**

24 Not later than 9 months after the date of enactment  
25 of this Act, the Comptroller General shall transmit to the  
26 Committee on Commerce, Science, and Transportation of

1 the Senate and the Committee on Science of the House  
2 of Representatives an assessment of the feasibility of  
3 NASA's planning for exploration of the Moon and Mars,  
4 giving special consideration to the long-term cost implica-  
5 tions of program architecture and schedules.

6 **SEC. 409. UNITED STATES HUMAN-RATED LAUNCH CAPAC-**  
7 **ITY ASSESSMENT.**

8 Notwithstanding any other provision of law, the Ad-  
9 ministrator shall, not later than 60 days after the date  
10 of enactment of this Act, provide to the Committee on  
11 Commerce, Science, and Transportation of the Senate and  
12 the Committee on Science of the House of Representa-  
13 tives, a full description of the transportation requirements  
14 and systems needed to support human lunar missions, as  
15 well as for the ISS, including—

16 (1) a retention plan of skilled personnel from  
17 the legacy Shuttle program which will sustain the  
18 level of safety for that program through the final  
19 flight and a transition plan that will ensure that any  
20 NASA programs can utilize the human capital re-  
21 sources of the Shuttle program, to the maximum ex-  
22 tent practicable;

23 (2) the implications for and impact on the Na-  
24 tion's aerospace industrial base;

1           (3) the manner in which the proposed vehicles  
2       contribute to a national mixed fleet launch and flight  
3       capacity;

4           (4) support for ISS crew transportation, ISS  
5       utilization, and lunar exploration architecture;

6           (5) for any human rated vehicle, a crew escape  
7       system, as well as substantial protection against or-  
8       bital debris strikes that offers a high level of safety;

9           (6) development risk areas;

10          (7) the schedule and cost;

11          (8) the relationship between crew and cargo ca-  
12       pabilities; and

13          (9) the potential risk reduction from the use of  
14       qualified hardware.

15       **TITLE V—OTHER PROGRAM**  
16               **AREAS**  
17       **Subtitle A—Space and Flight**  
18               **Support**

19       **SEC. 501. SPACE COMMUNICATIONS STUDY.**

20       (a) STUDY.—The Administrator shall develop a plan  
21       for updating NASA’s space communications architecture  
22       for both low-Earth orbital operations and deep space ex-  
23       ploration so that it is capable of meeting NASA’s needs  
24       over the next 20 years. The plan shall also include life-  
25       cycle cost estimates, milestones, estimated performance

1 capabilities, and 5-year funding profiles. The plan shall  
2 also incorporate all appropriate findings of the Deep Space  
3 Network report required under section 204 of this Act.  
4 The plan shall also include an estimate of the amounts  
5 of any reimbursements NASA is likely to receive from  
6 other Federal agencies during the expected life of the up-  
7 grades described in the plan.

8 (b) CONSULTATIONS.—The Administrator shall con-  
9 sult with other relevant Federal agencies in developing the  
10 plan under this section.

11 (c) REPORT.—The Administrator shall transmit the  
12 plan under this section to the Committee on Commerce,  
13 Science, and Transportation of the Senate and the Com-  
14 mittee on Science of the House of Representatives not  
15 later than February 17, 2007.

16 **SEC. 502. ORBITAL DEBRIS.**

17 The Administrator, in conjunction with the heads of  
18 other Federal agencies, shall take steps to develop or ac-  
19 quire technologies that will enable NASA to decrease the  
20 risks associated with orbital debris.

21 **SEC. 503. SECONDARY PAYLOAD CAPABILITY.**

22 In order to help develop a cadre of experienced engi-  
23 neers and to provide more routine and affordable access  
24 to space, the Administrator shall provide the capabilities  
25 to support secondary payloads on United States launch

1 vehicles, including free flyers, for satellites or scientific  
 2 payloads weighing less than 500 kilograms.

3 **SEC. 504. NASA HEALTHCARE PROGRAM.**

4 The Administrator shall develop policies, procedures,  
 5 and plans necessary for—

6 (1) the establishment of a lifetime healthcare  
 7 program for NASA astronauts; and

8 (2) the study and analysis of the healthcare  
 9 data obtained in order to better understand the  
 10 long-term health effects of space flight on humans.

11 **Subtitle B—Education**

12 **SEC. 511. INSTITUTIONS IN NASA'S MINORITY INSTITU-**  
 13 **TIONS PROGRAM.**

14 The matter appearing under the heading “**NA-**  
 15 **TIONAL AERONAUTICS AND SPACE ADMINISTRA-**  
 16 **TION—SMALL AND DISADVANTAGED BUSINESS**” in title  
 17 III of the Departments of Veterans Affairs and Housing  
 18 and Urban Development, and Independent Agencies Ap-  
 19 propriations Act, 1990 (42 U.S.C. 2473b; 103 Stat. 863)  
 20 is amended by striking “Historically Black Colleges and  
 21 Universities and” and inserting “Historically Black Col-  
 22 leges and Universities that are part B institutions (as de-  
 23 fined in section 322(2) of the Higher Education Act of  
 24 1965 (20 U.S.C. 1061(2))), Hispanic-serving institutions  
 25 (as defined in section 502(a)(5) of that Act (20 U.S.C.

1 1101a(a)(5))), Tribal Colleges or Universities (as defined  
 2 in section 316(b)(3) of that Act (20 U.S.C. 1059c(b)(3))),  
 3 Alaskan Native-serving institutions (as defined in section  
 4 317(b)(2) of that Act (20 U.S.C. 1059d(b)(2))), Native  
 5 Hawaiian-serving institutions (as defined in section  
 6 317(b)(4) of that Act (20 U.S.C. 1059d(b)(4))), and”.

7 **SEC. 512. PROGRAM TO EXPAND DISTANCE LEARNING IN**  
 8 **RURAL UNDERSERVED AREAS.**

9 (a) IN GENERAL.—The Administrator shall develop  
 10 or expand programs to extend science and space edu-  
 11 cational outreach to rural communities and schools  
 12 through video conferencing, interpretive exhibits, teacher  
 13 education, classroom presentations, and student field  
 14 trips.

15 (b) PRIORITIES.—In carrying out subsection (a), the  
 16 Administrator shall give priority to existing programs, in-  
 17 cluding Challenger Learning Centers—

18 (1) that utilize community-based partnerships  
 19 in the field;

20 (2) that build and maintain video conference  
 21 and exhibit capacity;

22 (3) that travel directly to rural communities  
 23 and serve low-income populations; and

1           (4) with a special emphasis on increasing the  
2           number of women and minorities in the science and  
3           engineering professions.

4 **SEC. 513. CHARLES “PETE” CONRAD ASTRONOMY AWARDS.**

5           (a) SHORT TITLE.—This section may be cited as the  
6           “Charles ‘Pete’ Conrad Astronomy Awards Act”.

7           (b) DEFINITIONS.—For the purposes of this sec-  
8           tion—

9                   (1) the term “amateur astronomer” means an  
10           individual whose employer does not provide any  
11           funding, payment, or compensation to the individual  
12           for the observation of asteroids and other celestial  
13           bodies, and does not include any individual employed  
14           as a professional astronomer;

15                   (2) the term “Minor Planet Center” means the  
16           Minor Planet Center of the Smithsonian Astro-  
17           physical Observatory;

18                   (3) the term “near-Earth asteroid” means an  
19           asteroid with a perihelion distance of less than 1.3  
20           Astronomical Units from the Sun; and

21                   (4) the term “Program” means the Charles  
22           “Pete” Conrad Astronomy Awards Program estab-  
23           lished under subsection (c).

24           (c) PETE CONRAD ASTRONOMY AWARD PROGRAM.—

1           (1) IN GENERAL.—The Administrator shall es-  
2       tablish the Charles “Pete” Conrad Astronomy  
3       Awards Program.

4           (2) AWARDS.—The Administrator shall make  
5       awards under the Program based on the rec-  
6       ommendations of the Minor Planet Center.

7           (3) AWARD CATEGORIES.—The Administrator  
8       shall make one annual award, unless there are no el-  
9       igible discoveries or contributions, for each of the  
10      following categories:

11           (A) The amateur astronomer or group of  
12      amateur astronomers who in the preceding cal-  
13      endar year discovered the intrinsically brightest  
14      near-Earth asteroid among the near-Earth as-  
15      teroids that were discovered during that year by  
16      amateur astronomers or groups of amateur as-  
17      tronomers.

18           (B) The amateur astronomer or group of  
19      amateur astronomers who made the greatest  
20      contribution to the Minor Planet Center’s mis-  
21      sion of cataloguing near-Earth asteroids during  
22      the preceding year.

23           (4) AWARD AMOUNT.—An award under the  
24      Program shall be in the amount of \$3,000.

1           (5) GUIDELINES.—(A) No individual who is not  
2           a citizen or permanent resident of the United States  
3           at the time of his discovery or contribution may re-  
4           ceive an award under this section.

5           (B) The decisions of the Administrator in mak-  
6           ing awards under this section are final.

7   **SEC. 514. REVIEW OF EDUCATION PROGRAMS.**

8           (a) IN GENERAL.—The Administrator shall enter  
9           into an arrangement with the National Research Council  
10          of the National Academy of Sciences to conduct a review  
11          and evaluation of NASA’s science, technology, engineer-  
12          ing, and mathematics education program. The review and  
13          evaluation shall be documented in a report to the Adminis-  
14          trator and shall include such recommendations as the Na-  
15          tional Research Council determines will improve the effec-  
16          tiveness of the program.

17          (b) REVIEW.—The review and evaluation under sub-  
18          section (a) shall include—

19               (1) an evaluation of the effectiveness of the  
20               overall program in meeting its defined goals and ob-  
21               jectives;

22               (2) an assessment of the quality and edu-  
23               cational effectiveness of the major components of the  
24               program, including an evaluation of the adequacy of  
25               assessment metrics and data collection requirements

1 available for determining the effectiveness of indi-  
2 vidual projects;

3 (3) an evaluation of the funding priorities in  
4 the program, including a review of the funding level  
5 and funding trend for each major component of the  
6 program and an assessment of whether the resources  
7 made available are consistent with meeting identified  
8 goals and priorities; and

9 (4) a determination of the extent and the effec-  
10 tiveness of coordination and collaboration between  
11 NASA and other Federal agencies that sponsor  
12 science, technology, engineering, and mathematics  
13 education activities.

14 (c) REPORT TO CONGRESS.—Not later than 18  
15 months after the date of enactment of this Act, the Ad-  
16 ministrator shall transmit to the Committee on Commerce,  
17 Science, and Transportation of the Senate and the Com-  
18 mittee on Science of the House of Representatives the re-  
19 port required under subsection (a).

20 **SEC. 515. EQUAL ACCESS TO NASA'S EDUCATION PRO-**  
21 **GRAMS.**

22 The Administrator shall strive to ensure equal access  
23 for minority and economically disadvantaged students to  
24 NASA's Education programs. Not later than 1 year after  
25 the date of enactment of this Act, and every 2 years there-

1 after, the Administrator shall submit a report to the Com-  
 2 mittee on Commerce, Science, and Transportation of the  
 3 Senate and the Committee on Science of the House of  
 4 Representatives describing the efforts by the Adminis-  
 5 trator to ensure equal access for minority and economi-  
 6 cally disadvantaged students under this section, and the  
 7 results of such efforts.

## 8 **TITLE VI—COMMERCIALIZATION**

### 9 **SEC. 601. COMPETITIVE PRIZE PROGRAM TO ENCOURAGE** 10 **DEVELOPMENT OF ADVANCED SPACE AND** 11 **AERONAUTICAL TECHNOLOGIES.**

12 Title III of the National Aeronautics and Space Act  
 13 of 1958 (42 U.S.C. 2451 et seq.) is amended by inserting  
 14 after section 313 the following:

### 15 **“SEC. 314. COMPETITIVE AWARD OF PRIZES TO ENCOUR-** 16 **AGE DEVELOPMENT OF ADVANCED SPACE** 17 **AND AERONAUTICAL TECHNOLOGIES.**

18 “(a) PROGRAM AUTHORIZED.—

19 “(1) IN GENERAL.—The Administrator may  
 20 carry out a program to award prizes to stimulate in-  
 21 novation in basic and applied research, technology  
 22 development, and prototype demonstration that have  
 23 the potential for application to the performance of  
 24 the space and aeronautical activities of the Adminis-  
 25 tration.

1           “(2) USE OF PRIZE AUTHORITY.—In carrying  
2           out the program, the Administrator shall seek to de-  
3           velop and support technologies and areas that the  
4           Administrator determines to be providing impetus to  
5           the Administration’s overall exploration and science  
6           architecture and plans and, where practicable, utilize  
7           the prize winner’s technologies in fulfilling the Ad-  
8           ministration’s missions.

9           “(b) PROGRAM REQUIREMENTS.—

10           “(1) COMPETITIVE PROCESS.—Recipients of  
11           prizes under the program under this section shall be  
12           selected through one or more competitions conducted  
13           by the Administrator.

14           “(2) ADVERTISING.—The Administrator shall  
15           widely advertise any competitions conducted under  
16           the program and shall include advertising to re-  
17           search universities.

18           “(c) REGISTRATION; ASSUMPTION OF RISK.—

19           “(1) REGISTRATION.—Each potential recipient  
20           of a prize in a competition under the program under  
21           this section shall register for the competition.

22           “(2) ASSUMPTION OF RISK.—In registering for  
23           a competition under paragraph (1), a potential re-  
24           cipient of a prize shall assume any and all risks, and  
25           waive claims against the United States Government

1 and its related entities, for any injury, death, dam-  
2 age, or loss of property, revenue, or profits, whether  
3 direct, indirect, or consequential, arising from par-  
4 ticipation in the competition, whether such injury,  
5 death, damage, or loss arises through negligence or  
6 otherwise, except in the case of willful misconduct.

7 “(3) RELATED ENTITY DEFINED.—In this sub-  
8 section, the term ‘related entity’ means a contractor  
9 or subcontractor at any tier, a supplier, user, cus-  
10 tomer, cooperating party, grantee, investigator, or  
11 detailee.

12 “(4) INTELLECTUAL PROPERTY.—As a condi-  
13 tion for the awarding of the prize by the Adminis-  
14 trator, the recipient of the prize shall award a non-  
15 exclusive, nontransferable, paid-up license from the  
16 prize recipient to NASA to practice the invention or  
17 have the invention practiced throughout out the  
18 world by or on behalf of the Government. In the ex-  
19 ercise of such license, the Government shall not pub-  
20 licly disclose trade secrets or commercial or financial  
21 information that is privileged or confidential within  
22 the meaning of section 552 (b)(4) of title 5, United  
23 States Code.

24 “(d) LIMITATIONS.—

1           “(1) TOTAL AMOUNT.—The total amount of  
2           cash prizes available for award in competitions  
3           under the program under this section in any fiscal  
4           year may not exceed \$50,000,000. Funds for a given  
5           prize program shall be taken from the specific budg-  
6           etary account specified in section 101, 102, or 103  
7           that is intended to benefit from the successful con-  
8           clusion of the competition.

9           “(2) APPROVAL REQUIRED FOR LARGE  
10          PRIZES.—No competition under the program may  
11          result in the award of more than \$1,000,000 in cash  
12          prizes without the approval of the Administrator or  
13          a designee of the Administrator.

14          “(e) RELATIONSHIP TO OTHER AUTHORITY.—The  
15          Administrator may utilize the authority in this section in  
16          conjunction with or in addition to the utilization of any  
17          other authority of the Administrator to acquire, support,  
18          or stimulate basic and applied research, technology devel-  
19          opment, or prototype demonstration projects.

20          “(f) AVAILABILITY OF FUNDS.—Funds appropriated  
21          for the program authorized by this section shall remain  
22          available until expended.”.

1 **SEC. 602. COMMERCIAL SUPPORT OF INTERNATIONAL**  
2 **SPACE STATION OPERATIONS AND UTILIZA-**  
3 **TION.**

4 The Administrator shall purchase commercial serv-  
5 ices for support of the ISS for cargo and other needs, and  
6 for enhancement of the capabilities of the ISS, to the max-  
7 imum extent possible, in accordance with Federal procure-  
8 ment law.

9 **SEC. 603. COMMERCIALIZATION PLAN.**

10 (a) IN GENERAL.—The Administrator, in consulta-  
11 tion with the Associate Administrator for Space Transpor-  
12 tation of the Federal Aviation Administration, the Direc-  
13 tor of the Office of Space Commercialization of the De-  
14 partment of Commerce, and any other relevant agencies,  
15 shall develop a commercialization plan to support the  
16 human missions to the Moon and Mars, to support Low-  
17 Earth Orbit activities and Earth science missions and ap-  
18 plications, and to transfer science research and technology  
19 to society. The plan shall identify opportunities for the pri-  
20 vate sector to participate in the future missions and activi-  
21 ties, including opportunities for partnership between  
22 NASA and the private sector in conducting research and  
23 the development of technologies and services. The plan  
24 shall include provisions for developing and funding sus-  
25 tained university and industry partnerships to conduct  
26 commercial research and technology development, to

1 proactively translate results of space research to Earth  
2 benefits, to advance United States economic interests, and  
3 to support the vision for exploration.

4 (b) REPORT.—Not later than 180 days after the date  
5 of enactment of this Act, the Administrator shall submit  
6 a copy of the plan to the Committee on Commerce,  
7 Science, and Transportation of the Senate and the Com-  
8 mittee on Science of the House of Representatives.

9 **SEC. 604. COMMERCIAL GOODS AND SERVICES.**

10 It is the sense of the Congress that NASA should  
11 purchase commercially available space goods and services  
12 to the fullest extent feasible in support of the human mis-  
13 sions beyond Earth and should encourage commercial use  
14 and development of space to the greatest extent prac-  
15 ticable.

16 **TITLE VII—WORKFORCE AND**  
17 **FACILITIES**

18 **SEC. 701. WORKFORCE STRATEGY.**

19 (a) IN GENERAL.—The Administrator shall develop  
20 a human capital strategy to ensure that NASA has a  
21 workforce of the appropriate size and with the appropriate  
22 skills to carry out the programs of NASA, consistent with  
23 the policies and plans developed pursuant to this Act. The  
24 strategy shall cover the period through fiscal year 2011.

1 (b) CONTENT.—The strategy shall describe, at a min-  
2 imum—

3 (1) any categories of employees NASA intends  
4 to reduce, the expected size and timing of those re-  
5 ductions, the methods NASA intends to use to make  
6 the reductions, and the reasons NASA no longer  
7 needs those employees;

8 (2) any categories of employees NASA intends  
9 to increase, the expected size and timing of those in-  
10 creases, the methods NASA intends to use to recruit  
11 the additional employees, and the reasons NASA  
12 needs those employees;

13 (3) the steps NASA will use to retain needed  
14 employees; and

15 (4) the budget assumptions of the strategy, and  
16 any expected additional costs or savings from the  
17 strategy by fiscal year.

18 (c) SCHEDULE.—The Administrator shall transmit  
19 the strategy developed under this section to the Committee  
20 on Science of the House of Representatives and the Com-  
21 mittee on Commerce, Science, and Transportation of the  
22 Senate not later than the date on which the President sub-  
23 mits the proposed budget for the Federal Government for  
24 fiscal year 2007 to the Congress. The strategy should em-  
25 phasize voluntary methods for achieving workforce goals.

1 At least 60 days before transmitting the strategy, NASA  
2 shall provide a draft of this strategy to its Federal Em-  
3 ployee Unions for a 30-day consultation period after which  
4 NASA shall respond in writing to any written concerns  
5 provided by these Unions.

6 (d) LIMITATION.—To allow time for voluntary meth-  
7 ods to achieve human capital goals, NASA may not ini-  
8 tiate any Reduction in Force or involuntary separations,  
9 with the exception of involuntary separations of manage-  
10 ment or supervisory personnel or for legitimate discipli-  
11 nary reasons, until October 1, 2006.

12 **SEC. 702. FACILITIES PLAN.**

13 (a) IN GENERAL.—The Administrator shall develop  
14 a plan for managing NASA’s facilities through fiscal year  
15 2015. The plan shall be consistent with the policies and  
16 plans developed pursuant to this Act.

17 (b) CONTENT.—At a minimum, the plan shall de-  
18 scribe—

19 (1) any new facilities NASA intends to acquire,  
20 whether through construction, purchase, or lease,  
21 and the expected dates for doing so;

22 (2) any facilities NASA intends to significantly  
23 modify, and the expected dates for doing so;

24 (3) any facilities NASA intends to close, and  
25 the expected dates for doing so;

1           (4) any transaction NASA intends to conduct  
2       to sell, lease, or otherwise transfer the ownership of  
3       a facility, and the expected dates for doing so;

4           (5) how each of the actions described in para-  
5       graphs (1), (2), (3), and (4) will enhance the ability  
6       of NASA to carry out its programs;

7           (6) the expected costs or savings expected from  
8       each of the actions described in paragraphs (1), (2),  
9       (3), and (4);

10          (7) the priority order of the actions described in  
11       paragraphs (1), (2), (3), and (4);

12          (8) the budget assumptions of the plan; and

13          (9) how facilities were evaluated in developing  
14       the plan.

15       (c) SCHEDULE.—The Administrator shall transmit  
16   the plan developed under this section to the Committee  
17   on Science of the House of Representatives and the Com-  
18   mittee on Commerce, Science, and Transportation of the  
19   Senate not later than the date on which the President sub-  
20   mits the proposed budget for the Federal Government for  
21   fiscal year 2008 to the Congress.

22   **SEC. 703. NASA TEST FACILITIES POLICY.**

23       The Administrator shall establish a policy of charging  
24   users of NASA's test facilities for the costs associated with  
25   their tests, but shall not seek to recover the full costs of

1 the operation of those facilities from the users. The Ad-  
2 ministrator shall establish a core funding account that  
3 shall be used to maintain the operation and viability of  
4 NASA's test facilities during periods of low utilization.  
5 The Administrator shall not close or mothball any aero-  
6 nautical test facilities identified in the 2003 independent  
7 assessment by the RAND Corporation, entitled "Wind  
8 Tunnel and Propulsion Test Facilities: An Assessment of  
9 NASA's Capabilities to Serve National Needs" as being  
10 part of the minimum set of those facilities necessary to  
11 retain and manage to serve national needs, as well as any  
12 other NASA test facilities that were in use as of January  
13 1, 2004, until such time as the Office of Science and Tech-  
14 nology Policy has commissioned and received the results  
15 of an independent review of the Nation's long term stra-  
16 tegic needs for test facilities and transmitted the results  
17 of that review to Congress.

18 **SEC. 704. STUDY ON THE FEASIBILITY OF USE OF GROUND**  
19 **SOURCE HEAT PUMPS.**

20 (a) IN GENERAL.—The Administrator shall conduct  
21 a feasibility study on the use of ground source heat pumps  
22 in future NASA facilities or substantial renovation of ex-  
23 isting NASA facilities involving the installation of heating,  
24 ventilating, and air conditioning systems.

25 (b) CONTENTS.—The study shall examine—

1           (1) the life-cycle costs, including maintenance  
2           costs, of the operation of such heat pumps compared  
3           to generally available heating, cooling, and water  
4           heating equipment;

5           (2) barriers to installation, such as availability  
6           and suitability of terrain; and

7           (3) such other issues as the Administrator con-  
8           siders appropriate.

9           (c) DEFINITION.—The term “ground source heat  
10          pump” means an electric-powered system that uses the  
11          Earth’s relatively constant temperature to provide heat-  
12          ing, cooling, or hot water.

13       **SEC. 705. FACILITIES MANAGEMENT.**

14          (a) IN GENERAL.—Notwithstanding any other provi-  
15          sion of law, the Administrator may convey, by lease, real  
16          and related personal property under the custody and con-  
17          trol of NASA, or interests therein, and retain the net pro-  
18          ceeds of such dispositions in an account within NASA’s  
19          working capital fund to be used for NASA’s real property  
20          capital needs at the NASA facility at which the leasing  
21          arrangement occurs. All net proceeds realized under this  
22          section shall be obligated or expended only as authorized  
23          by appropriations Acts. To aid in the use of this authority,  
24          NASA shall develop a facilities investment plan that takes

1 into account uniqueness, mission dependency, and other  
2 studies required by this Act.

3 (b) DEFINITIONS.—In this section:

4 (1) NET PROCEEDS.—The term “net proceeds”  
5 means the rental and other sums received less the  
6 costs of the disposition.

7 (2) REAL PROPERTY CAPITAL NEEDS.—The  
8 term “real property capital needs” means any ex-  
9 penses necessary and incident to the agency’s real  
10 property capital acquisitions, improvements, and dis-  
11 positions.

## 12 **TITLE VIII—MISCELLANEOUS** 13 **AMENDMENTS**

### 14 **SEC. 801. RETROCESSION OF JURISDICTION.**

15 Title III of the National Aeronautics and Space Act  
16 of 1958, as amended by this Act, is further amended by  
17 adding at the end the following:

#### 18 **“SEC. 316. RETROCESSION OF JURISDICTION.**

19 “Notwithstanding any other provision of law, the Ad-  
20 ministrator may, whenever the Administrator considers it  
21 desirable, relinquish to a State all or part of the legislative  
22 jurisdiction of the United States over lands or interests  
23 under the Administrator’s control in that State. Relin-  
24 quishment of legislative jurisdiction under this section  
25 may be accomplished—

1           “(1) by filing with the Governor of the State  
2           concerned a notice of relinquishment to take effect  
3           upon acceptance thereof; or

4           “(2) as the laws of the State may otherwise  
5           provide.”.

6 **SEC. 802. EXTENSION OF INDEMNIFICATION AUTHORITY.**

7           Section 309(f)(1) of the National Aeronautics and  
8           Space Act of 1958 (42 U.S.C. 2458c(f)(1)) is amended—

9           (1) by striking “December 31, 2002” and in-  
10          serting “December 31, 2007”; and

11          (2) by striking “September 30, 2005” and in-  
12          serting “December 31, 2009”.

13 **SEC. 803. INTELLECTUAL PROPERTY PROVISIONS.**

14          Section 305 of the National Aeronautics and Space  
15          Act of 1958 (42 U.S.C. 2457) is amended by inserting  
16          after subsection (f) the following:

17          “(g) ASSIGNMENT OF PATENT RIGHTS, ETC.—

18                 “(1) IN GENERAL.—Under agreements entered  
19                 into pursuant to paragraph (5) or (6) of section  
20                 203(c) of this Act (42 U.S.C. 2473(c)(5) or (6)), the  
21                 Administrator may—

22                         “(A) grant, or agree to grant in advance to  
23                         a participating party, patent licenses or assign-  
24                         ments, or options thereto, in any invention

1           made in whole or in part by an Administration  
2           employee under the agreement; or

3           “(B) subject to section 209 of title 35,  
4           United States Code, grant a license to an inven-  
5           tion which is federally owned, for which a pat-  
6           ent application was filed before the signing of  
7           the agreement, and directly within the scope of  
8           the work under the agreement, for reasonable  
9           compensation when appropriate.

10          “(2) EXCLUSIVITY.—The Administrator shall  
11          ensure, through such agreement, that the partici-  
12          pating party has the option to choose an exclusive  
13          license for a prenegotiated field of use for any such  
14          invention under the agreement or, if there is more  
15          than 1 participating party, that the participating  
16          parties are offered the option to hold licensing rights  
17          that collectively encompass the rights that would be  
18          held under such an exclusive license by one party.

19          “(3) CONDITIONS.—In consideration for the  
20          Government’s contribution under the agreement,  
21          grants under this subsection shall be subject to the  
22          following explicit conditions:

23                 “(A) A nonexclusive, nontransferable, ir-  
24                 revocable, paid-up license from the participating  
25                 party to the Administration to practice the in-

1           vention or have the invention practiced through  
2           out the world by or on behalf of the Govern-  
3           ment. In the exercise of such license, the Gov-  
4           ernment shall not publicly disclose trade secrets  
5           or commercial or financial information that is  
6           privileged or confidential within the meaning of  
7           section 552 (b)(4) of title 5, United States  
8           Code, or which would be considered as such if  
9           it had been obtained from a non-Federal party.

10           “(B) If the Administration assigns title or  
11           grants an exclusive license to such an invention,  
12           the Government shall retain the right—

13                   “(i) to require the participating party  
14                   to grant to a responsible applicant a non-  
15                   exclusive, partially exclusive, or exclusive  
16                   license to use the invention in the appli-  
17                   cant’s licensed field of use, on terms that  
18                   are reasonable under the circumstances; or

19                   “(ii) if the participating party fails to  
20                   grant such a license, to grant the license  
21                   itself.

22           “(C) The Government may exercise its  
23           right retained under subparagraph (B) only in  
24           exceptional circumstances and only if the Gov-  
25           ernment determines that—

1 “(i) the action is necessary to meet  
 2 health or safety needs that are not reason-  
 3 ably satisfied by the participating party;

4 “(ii) the action is necessary to meet  
 5 requirements for public use specified by  
 6 Federal regulations, and such requirements  
 7 are not reasonably satisfied by the partici-  
 8 pating party; or

9 “(iii) the action is necessary to comply  
 10 with an agreement containing provisions  
 11 described in section 12(c)(4)(B) of the Ste-  
 12 venson-Wydler Technology Innovation Act  
 13 of 1980 (15 U.S.C. 3710a(c)(4)(B)).

14 “(4) APPEAL AND REVIEW OF DETERMINA-  
 15 TION.—A determination under paragraph (3)(C) is  
 16 subject to administrative appeal and judicial review  
 17 under section 203(b) of title 35, United States  
 18 Code.”.

19 **SEC. 804. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**  
 20 **TIES.**

21 Title III of the National Aeronautics and Space Act  
 22 of 1958, as amended by this Act, is further amended by  
 23 adding at the end the following:

1   **“SEC. 317. ELECTRONIC ACCESS TO BUSINESS OPPORTUNI-**  
2                                   **TIES.**

3           “(a) IN GENERAL.—The Administrator may imple-  
4   ment a pilot program providing for reduction in the wait-  
5   ing period between publication of notice of a proposed con-  
6   tract action and release of the solicitation for procure-  
7   ments conducted by the Administration.

8           “(b) APPLICABILITY.—The program implemented  
9   under subsection (a) shall apply to noncommercial acquisi-  
10   tions—

11           “(1) with a total value in excess of \$100,000  
12   but not more than \$5,000,000, including options;

13           “(2) that do not involve bundling of contract re-  
14   quirements as defined in section 3(o) of the Small  
15   Business Act (15 U.S.C. 632(o)); and

16           “(3) for which a notice is required by section  
17   8(e) of the Small Business Act (15 U.S.C. 637(e))  
18   and section 18(a) of the Office of Federal Procure-  
19   ment Policy Act (41 U.S.C. 416(a)).

20           “(c) NOTICE.—

21           “(1) ACCESSIBILITY.—Notice of acquisitions  
22   subject to the program authorized by this section  
23   shall be made accessible through the single Govern-  
24   ment-wide point of entry designated in the Federal  
25   Acquisition Regulation, consistent with section

1       30(c)(4) of the Office of Federal Procurement Policy  
2       Act (41 U.S.C. 426(c)(4)).

3           “(2) PUBLICATION REQUIREMENTS.—Providing  
4       access to notice in accordance with paragraph (1)  
5       satisfies the publication requirements of section 8(e)  
6       of the Small Business Act (15 U.S.C. 637(e)) and  
7       section 18(a) of the Office of Federal Procurement  
8       Policy Act (41 U.S.C. 416(a)).

9           “(d) SOLICITATION.—Solicitations subject to the pro-  
10      gram authorized by this section shall be made accessible  
11      through the Governmentwide point of entry, consistent  
12      with requirements set forth in the Federal Acquisition  
13      Regulation, except for adjustments to the wait periods as  
14      provided in subsection (e).

15          “(e) WAIT PERIOD.—

16           “(1) REDUCTION.—Whenever a notice required  
17      by section 8(e)(1)(A) of the Small Business Act (15  
18      U.S.C. 637(e)(1)(A)) and section 18(a) of the Office  
19      of Federal Procurement Policy Act (41 U.S.C.  
20      416(a)) is made accessible in accordance with sub-  
21      section (c) of this section, the wait period set forth  
22      in section 8(e)(3)(A) of the Small Business Act (15  
23      U.S.C. 637(e)(3)(A)) and section 18(a)(3)(A) of the  
24      Office of Federal Procurement Policy Act (41 U.S.C.  
25      416(a)(3)(A)), shall be reduced by 5 days. If the so-

1        solicitation applying to that notice is accessible elec-  
 2        tronically in accordance with subsection (d) simulta-  
 3        neously with issuance of the notice, the wait period  
 4        set forth in section 8(e)(3)(A) of the Small Business  
 5        Act (15 U.S.C. 637(e)(3)(A)) and section  
 6        18(a)(3)(A) of the Office of Federal Procurement  
 7        Policy Act (41 U.S.C. 416(a)(3)(A)) shall not apply  
 8        and the period specified in section 8(e)(3)(B) of the  
 9        Small Business Act and section 18(a)(3)(B) of the  
 10        Office of Federal Procurement Policy Act for sub-  
 11        mission of bids or proposals shall begin to run from  
 12        the date the solicitation is electronically accessible.

13            “(2) DEADLINE.—When a notice and solicita-  
 14        tion are made accessible simultaneously and the wait  
 15        period is waived pursuant to paragraph (1), the  
 16        deadline for the submission of bids or proposals shall  
 17        be not less than 5 days greater than the minimum  
 18        deadline set forth in section 8(e)(3)(B) of the Small  
 19        Business Act (15 U.S.C. 637(e)(3)(B)) and section  
 20        18(a)(3)(B) of the Office of Federal Procurement  
 21        Policy Act (41 U.S.C. 416(a)(3)(B)).

22            “(f) IMPLEMENTATION.—

23            “(1) MODIFICATION OF REQUIREMENTS.—  
 24        Nothing in this section shall be construed as modi-

1       fying regulatory requirements set forth in the Fed-  
2       eral Acquisition Regulation, except with respect to—

3               “(A) the applicable wait period between  
4               publication of notice of a proposed contract ac-  
5               tion and release of the solicitation; and

6               “(B) the deadline for submission of bids or  
7               proposals for procurements conducted in ac-  
8               cordance with the terms of this pilot program.

9               “(2) NONAPPLICABILITY.—This section shall  
10       not apply to the extent the President determines it  
11       is inconsistent with any international agreement to  
12       which the United States is a party.

13       “(g) STUDY.—Not later than 18 months after the ef-  
14       fective date of the program, the Administration, in coordi-  
15       nation with the Small Business Administration, the Gen-  
16       eral Services Administration, and the Office of Manage-  
17       ment and Budget, shall evaluate the impact of the pilot  
18       program and submit to Congress a report that—

19               “(1) sets forth in detail the results of the test,  
20               including the impact on competition and small busi-  
21               ness participation; and

22               “(2) addresses whether the pilot program  
23               should be made permanent, continued as a test pro-  
24               gram, or allowed to expire.

1       “(h) REGULATIONS.—The Administrator shall pub-  
2       lish proposed revisions to the NASA Federal Acquisition  
3       Regulation Supplement necessary to implement this sec-  
4       tion in the Federal Register not later than 120 days after  
5       the date of enactment of the National Aeronautics and  
6       Space Administration Authorization Act of 2005. The Ad-  
7       ministrator shall—

8               “(1) make the proposed regulations available  
9       for public comment for a period of not less than 60  
10      days; and

11              “(2) publish final regulations in the Federal  
12      Register not later than 240 days after the date of  
13      enactment of that Act.

14      “(i) EFFECTIVE DATE.—

15              “(1) IN GENERAL.—The pilot program author-  
16      ized by this section shall take effect on the date  
17      specified in the final regulations promulgated pursu-  
18      ant to subsection (h)(2).

19              “(2) LIMITATION.—The date so specified shall  
20      be not less than 30 days after the date on which the  
21      final regulation is published.

22      “(j) EXPIRATION OF AUTHORITY.—The authority to  
23      conduct the pilot program under subsection (a) and to  
24      award contracts under such program shall expire 2 years  
25      after the effective date established in the final regulations

1 published in the Federal Register under subsection  
2 (h)(2).”.

3 **SEC. 805. REQUIREMENT FOR INDEPENDENT COST ANAL-**  
4 **YSIS.**

5 Section 301 of the National Aeronautics and Space  
6 Administration Authorization Act of 2000 (42 U.S.C.  
7 2459g) is amended—

8 (1) by striking “Phase B” in subsection (a) and  
9 inserting “implementation”;

10 (2) by striking “\$150,000,000” in subsection  
11 (a) and inserting “\$250,000,000”;

12 (3) by striking “Chief Financial Officer” each  
13 place it appears in subsection (a) and inserting “Ad-  
14 ministrator”;

15 (4) by inserting “and consider” in subsection  
16 (a) after “shall conduct”; and

17 (5) by striking subsection (b) and inserting the  
18 following:

19 “(b) IMPLEMENTATION DEFINED.—In this section,  
20 the term ‘implementation’ means all activity in the life  
21 cycle of a project after preliminary design, independent as-  
22 sessment of the preliminary design, and approval to pro-  
23 ceed into implementation, including critical design, devel-  
24 opment, certification, launch, operations, disposal of as-

1 sets, and, for technology programs, development, testing,  
 2 analysis and communication of the results.”.

3 **SEC. 806. LIMITATIONS ON OFF-SHORE PERFORMANCE OF**  
 4 **CONTRACTS FOR THE PROCUREMENT OF**  
 5 **GOODS AND SERVICES.**

6 (a) CONVERSIONS TO CONTRACTOR PERFORMANCE  
 7 OF ADMINISTRATION ACTIVITIES.—Except as provided in  
 8 subsection (c), an activity or function of the Administra-  
 9 tion that is converted to contractor performance under Of-  
 10 fice of Management and Budget Circular A–76 may not  
 11 be performed by the contractor or any subcontractor at  
 12 a location outside the United States.

13 (b) CONTRACTS FOR THE PROCUREMENT OF SERV-  
 14 ICES.—(1) Except as provided in subsection (c), a contract  
 15 for the procurement of goods or services that is entered  
 16 into by the Administrator may not be performed outside  
 17 the United States unless it is to meet a requirement of  
 18 the Administration for goods or services specifically at a  
 19 location outside the United States.

20 (2) The President may waive the prohibition in para-  
 21 graph (1) in the case of any contract for which the Presi-  
 22 dent determines in writing that it is necessary in the na-  
 23 tional security interests of the United States for goods or  
 24 services under the contract to be performed outside the  
 25 United States.

1       (3) The Administrator may waive the prohibition in  
 2 paragraph (1) in the case of any contract for which the  
 3 Administrator determines in writing that essential goods  
 4 or services under the contract are only available from a  
 5 source outside the United States.

6       (c) EXCEPTION.—Subsections (a) and (b)(1) shall  
 7 not apply to the extent that the activity or function under  
 8 the contract was previously performed by Federal Govern-  
 9 ment employees outside the United States.

## 10           **TITLE IX—INDEPENDENT** 11                   **COMMISSIONS**

### 12   **SEC. 901. DEFINITIONS.**

13       For purposes of this title—

14           (1) the term “Commission” means a Commis-  
 15 sion established under this title;

16           (2) the term “incident” means either an acci-  
 17 dent or a deliberate act; and

18           (3) the term “NTSB” means the National  
 19 Transportation Safety Board.

## 20   **Subtitle   A—International   Space** 21       **Station   Independent   Safety** 22       **Commission**

### 23   **SEC. 911. ESTABLISHMENT OF COMMISSION.**

24       (a) ESTABLISHMENT.—The President shall establish  
 25 an independent, nonpartisan Commission within the exec-

1     utive branch to discover and assess any vulnerabilities of  
2     the International Space Station that could lead to its de-  
3     struction, compromise the health of its crew, or necessitate  
4     its premature abandonment.

5           (b) DEADLINE FOR ESTABLISHMENT.—The Presi-  
6     dent shall issue an executive order establishing a Commis-  
7     sion within 30 days after the date of enactment of this  
8     Act.

9     **SEC. 912. TASKS OF THE COMMISSION.**

10           The Commission established under section 911 shall,  
11     to the extent possible, undertake the following tasks:

12           (1) Catalog threats to and vulnerabilities of the  
13     ISS, including design flaws, natural phenomena,  
14     computer software or hardware flaws, sabotage or  
15     terrorist attack, number of crewmembers, and inabil-  
16     ity to adequately deliver replacement parts and sup-  
17     plies, and management or procedural deficiencies.

18           (2) Make recommendations for corrective ac-  
19     tions.

20           (3) Provide any additional findings or rec-  
21     ommendations considered by the Commission to be  
22     important, whether or not they are related to ISS  
23     safety.

24           (4) Prepare a report to Congress, the Presi-  
25     dent, and the public.

1 **Subtitle B—Human Space Flight**  
2 **Independent Investigation Com-**  
3 **mission**

4 **SEC. 921. ESTABLISHMENT OF COMMISSION.**

5 (a) ESTABLISHMENT.—The President shall establish  
6 an independent, nonpartisan Commission within the exec-  
7 utive branch to investigate any incident that results in the  
8 loss of—

9 (1) a Space Shuttle;

10 (2) the International Space Station or its oper-  
11 ational viability;

12 (3) any other United States space vehicle car-  
13 rying humans;

14 (4) any space vehicle carrying United States  
15 citizens; or

16 (5) a crew member or passenger of any space  
17 vehicle described in this subsection.

18 (b) DEADLINE FOR ESTABLISHMENT.—The Presi-  
19 dent shall issue an executive order establishing a Commis-  
20 sion within 7 days after an incident specified in subsection  
21 (a).

22 **SEC. 922. TASKS OF THE COMMISSION.**

23 A Commission established pursuant to this subtitle  
24 shall, to the extent possible, undertake the following tasks:

25 (1) Investigate the incident.

1 (2) Determine the cause of the incident.

2 (3) Identify all contributing factors to the cause  
3 of the incident.

4 (4) Make recommendations for corrective ac-  
5 tions.

6 (5) Provide any additional findings or rec-  
7 ommendations deemed by the Commission to be im-  
8 portant, whether or not they are related to the spe-  
9 cific incident under investigation.

10 (6) Prepare a report to Congress, the Presi-  
11 dent, and the public.

12 **SEC. 923. ROLE OF NTSB.**

13 The NTSB shall assume responsibility for the inves-  
14 tigation of any incident described in section 921(a) imme-  
15 diately upon the occurrence of that incident. The NTSB  
16 shall transfer responsibility for the investigation to a Com-  
17 mission established pursuant to this subtitle as soon as  
18 the Commission holds its initial meeting under section  
19 931(d).

20 **Subtitle C—Organization and**  
21 **Operation of Commissions**

22 **SEC. 931. COMPOSITION OF COMMISSIONS.**

23 (a) NUMBER OF COMMISSIONERS.—A Commission  
24 established pursuant to this title shall consist of 15 mem-  
25 bers.

1       (b) SELECTION.—The members of a Commission  
2 shall be chosen in the following manner:

3           (1) The Chairman of the NTSB shall be a  
4 member of the Commission.

5           (2) The President shall appoint the remaining  
6 14 members, and shall designate the Chairman and  
7 Vice Chairman of the Commission from among its  
8 members.

9           (3) Four of the 14 members appointed by the  
10 President shall be selected by the President in the  
11 following manner:

12           (A) The majority leader of the Senate, the  
13 minority leader of the Senate, the Speaker of  
14 the House of Representatives, and the minority  
15 leader of the House of Representatives shall  
16 each provide to the President a list of can-  
17 didates for membership on the Commission.

18           (B) The President shall select one of the  
19 candidates from each of the 4 lists for member-  
20 ship on the Commission.

21           (4) In the case of a Commission established  
22 under subtitle A, the President shall select one can-  
23 didate from a list of candidates for membership on  
24 the Commission provided by the President of the col-

1       lective-bargaining organization including the largest  
2       member of NASA engineers.

3           (5) With the exception of the Chairman of the  
4       NTSB, no officer or employee of the Federal Gov-  
5       ernment shall serve as a member of the Commission.

6           (6) No member of the Commission shall have,  
7       or have pending, a contractual relationship with  
8       NASA.

9           (7) The President shall not appoint any indi-  
10      vidual as a member of a Commission under this sec-  
11      tion who has a current or former relationship with  
12      the Administrator that the President determines  
13      would constitute a conflict of interest.

14          (8) To the extent practicable, the President  
15      shall ensure that the members of the Commission in-  
16      clude some individuals with experience relative to  
17      human carrying spacecraft, as well as some individ-  
18      uals with investigative experience and some individ-  
19      uals with legal experience.

20          (9) To the extent practicable, the President  
21      shall seek diversity in the membership of the Com-  
22      mission.

23          (10) The President may waive the prohibitions  
24      in paragraphs (5) and (6) with respect to the selec-

1       tion of not more than 2 members of a Commission  
2       established under subtitle A.

3       (c) DEADLINE FOR APPOINTMENT.—All members of  
4       a Commission established under subtitle A shall be ap-  
5       pointed no later than 60 days after issuance of the execu-  
6       tive order establishing the Commission. All members of a  
7       Commission established under subtitle B shall be ap-  
8       pointed no later than 30 days after the incident.

9       (d) INITIAL MEETING.—A Commission shall meet  
10      and begin operations as soon as practicable.

11      (e) QUORUM; VACANCIES.—After its initial meeting,  
12      a Commission shall meet upon the call of the Chairman  
13      or a majority of its members. Eight members of a Com-  
14      mission shall constitute a quorum. Any vacancy in a Com-  
15      mission shall not affect its powers, but shall be filled in  
16      the same manner in which the original appointment was  
17      made.

18      **SEC. 932. POWERS OF COMMISSION.**

19      (a) IN GENERAL.—

20              (1) HEARINGS AND EVIDENCE.—A Commission  
21      or, on the authority of the Commission, any sub-  
22      committee or member thereof, may, for the purpose  
23      of carrying out this title—

1 (A) hold such hearings and sit and act at  
2 such times and places, take such testimony, re-  
3 ceive such evidence, administer such oaths; and

4 (B) subject to paragraph (2)(A), require,  
5 by subpoena or otherwise, the attendance and  
6 testimony of such witnesses and the production  
7 of such books, records, correspondence, memo-  
8 randa, papers, and documents,  
9 as the Commission or such designated subcommittee  
10 or designated member may determine advisable.

11 (2) SUBPOENAS.—

12 (A) ISSUANCE.—

13 (i) IN GENERAL.—A subpoena may be  
14 issued under this subsection only—

15 (I) by the agreement of the  
16 Chairman and the Vice Chairman; or

17 (II) by the affirmative vote of 8  
18 members of the Commission.

19 (ii) SIGNATURE.—Subject to clause  
20 (i), subpoenas issued under this subsection  
21 may be issued under the signature of the  
22 Chairman or any member designated by a  
23 majority of the Commission, and may be  
24 served by any person designated by the

1 Chairman or by a member designated by a  
2 majority of the Commission.

3 (B) ENFORCEMENT.—

4 (i) IN GENERAL.—In the case of con-  
5 tumacy or failure to obey a subpoena  
6 issued under subsection (a), the United  
7 States district court for the judicial district  
8 in which the subpoenaed person resides, is  
9 served, or may be found, or where the sub-  
10 poena is returnable, may issue an order re-  
11 quiring such person to appear at any des-  
12 ignated place to testify or to produce docu-  
13 mentary or other evidence. Any failure to  
14 obey the order of the court may be pun-  
15 ished by the court as a contempt of that  
16 court.

17 (ii) ADDITIONAL ENFORCEMENT.—In  
18 the case of a failure of a witness to comply  
19 with a subpoena or to testify when sum-  
20 moned under authority of this section, a  
21 Commission may, by majority vote, certify  
22 a statement of fact constituting such fail-  
23 ure to the appropriate United States attor-  
24 ney, who may bring the matter before the  
25 grand jury for its action, under the same

1           statutory authority and procedures as if  
2           the United States attorney had received a  
3           certification under sections 102 through  
4           104 of the Revised Statutes of the United  
5           States (2 U.S.C. 192 through 194).

6           (b) CONTRACTING.—A Commission may, to such ex-  
7   tent and in such amounts as are provided in appropriation  
8   Acts, enter into contracts to enable the Commission to dis-  
9   charge its duties under this title.

10          (c) INFORMATION FROM FEDERAL AGENCIES.—

11           (1) IN GENERAL.—A Commission may secure  
12   directly from any executive department, bureau,  
13   agency, board, commission, office, independent es-  
14   tablishment, or instrumentality of the Government,  
15   information, suggestions, estimates, and statistics  
16   for the purposes of this title. Each department, bu-  
17   reau, agency, board, commission, office, independent  
18   establishment, or instrumentality shall, to the extent  
19   authorized by law, furnish such information, sugges-  
20   tions, estimates, and statistics directly to the Com-  
21   mission, upon request made by the Chairman, the  
22   chairman of any subcommittee created by a majority  
23   of the Commission, or any member designated by a  
24   majority of the Commission.

1           (2) RECEIPT, HANDLING, STORAGE, AND DIS-  
2       SEMINATION.—Information shall only be received,  
3       handled, stored, and disseminated by members of  
4       the Commission and its staff consistent with all ap-  
5       plicable statutes, regulations, and Executive orders.

6       (d) ASSISTANCE FROM FEDERAL AGENCIES.—

7           (1) GENERAL SERVICES ADMINISTRATION.—  
8       The Administrator of General Services shall provide  
9       to a Commission on a reimbursable basis adminis-  
10      trative support and other services for the perform-  
11      ance of the Commission's tasks.

12          (2) OTHER DEPARTMENTS AND AGENCIES.—In  
13      addition to the assistance prescribed in paragraph  
14      (1), departments and agencies of the United States  
15      may provide to the Commission such services, funds,  
16      facilities, staff, and other support services as they  
17      may determine advisable and as may be authorized  
18      by law.

19          (3) NASA ENGINEERING AND SAFETY CEN-  
20      TER.—The NASA Engineering and Safety Center  
21      shall provide data and technical support as re-  
22      quested by a Commission.

23      (e) POSTAL SERVICES.—A Commission may use the  
24      United States mails in the same manner and under the

1 same conditions as departments and agencies of the  
2 United States.

3 **SEC. 933. PUBLIC MEETINGS, INFORMATION, AND HEAR-**  
4 **INGS.**

5 (a) PUBLIC MEETINGS AND RELEASE OF PUBLIC  
6 VERSIONS OF REPORTS.—A Commission shall—

7 (1) hold public hearings and meetings to the ex-  
8 tent appropriate; and

9 (2) release public versions of the reports re-  
10 quired under this Act.

11 (b) PUBLIC HEARINGS.—Any public hearings of a  
12 Commission shall be conducted in a manner consistent  
13 with the protection of information provided to or developed  
14 for or by the Commission as required by any applicable  
15 statute, regulation, or Executive order.

16 **SEC. 934. STAFF OF COMMISSION.**

17 (a) IN GENERAL.—

18 (1) APPOINTMENT AND COMPENSATION.—The  
19 Chairman, in consultation with Vice Chairman, in  
20 accordance with rules agreed upon by a Commission,  
21 may appoint and fix the compensation of a staff di-  
22 rector and such other personnel as may be necessary  
23 to enable the Commission to carry out its functions,  
24 without regard to the provisions of title 5, United  
25 States Code, governing appointments in the competi-

1        tive service, and without regard to the provisions of  
2        chapter 51 and subchapter III of chapter 53 of such  
3        title relating to classification and General Schedule  
4        pay rates, except that no rate of pay fixed under this  
5        paragraph may exceed the equivalent of that payable  
6        for a position at level V of the Executive Schedule  
7        under section 5316 of title 5, United States Code.  
8        Employees of NASA shall not be appointed to the  
9        staff of a Commission.

10            (2) PERSONNEL AS FEDERAL EMPLOYEES.—

11            (A) IN GENERAL.—The executive director  
12            and any personnel of a Commission shall be  
13            considered employees under section 2105 of  
14            title 5, United States Code, for purposes of  
15            chapters 63, 81, 83, 84, 85, 87, 89, and 90 of  
16            that title.

17            (B) MEMBERS OF COMMISSION.—Subpara-  
18            graph (A) does not apply to members of a Com-  
19            mission.

20            (b) DETAILEES.—Any Federal Government em-  
21            ployee, except for an employee of NASA, may be detailed  
22            to a Commission without reimbursement from the Com-  
23            mission, and such detailee shall retain the rights, status,  
24            and privileges of his or her regular employment without  
25            interruption.

1       (c) CONSULTANT SERVICES.—A Commission may  
2 procure the services of experts and consultants in accord-  
3 ance with section 3109 of title 5, United States Code, but  
4 at rates not to exceed the daily rate paid a person occu-  
5 pying a position at level IV of the Executive Schedule  
6 under section 5315 of title 5, United States Code. Any  
7 consultant or expert whose services are procured under  
8 this subsection shall disclose any contract or association  
9 it has with NASA or any NASA contractor.

10 **SEC. 935. COMPENSATION AND TRAVEL EXPENSES.**

11       (a) COMPENSATION.—Each member of a Commission  
12 may be compensated at not to exceed the daily equivalent  
13 of the annual rate of basic pay in effect for a position  
14 at level IV of the Executive Schedule under section 5315  
15 of title 5, United States Code, for each day during which  
16 that member is engaged in the actual performance of the  
17 duties of the Commission.

18       (b) TRAVEL EXPENSES.—While away from their  
19 homes or regular places of business in the performance  
20 of services for the Commission, members of a Commission  
21 shall be allowed travel expenses, including per diem in lieu  
22 of subsistence, in the same manner as persons employed  
23 intermittently in the Government service are allowed ex-  
24 penses under section 5703(b) of title 5, United States  
25 Code.

1 **SEC. 936. SECURITY CLEARANCES FOR COMMISSION MEM-**  
2 **BERS AND STAFF.**

3 The appropriate Federal agencies or departments  
4 shall cooperate with a Commission in expeditiously pro-  
5 viding to the Commission members and staff appropriate  
6 security clearances to the extent possible pursuant to ex-  
7 isting procedures and requirements. No person shall be  
8 provided with access to classified information under this  
9 title without the appropriate security clearances.

10 **SEC. 937. REPORTING REQUIREMENTS AND TERMINATION.**

11 (a) INTERIM REPORTS.—A Commission may submit  
12 to the President and Congress interim reports containing  
13 such findings, conclusions, and recommendations for cor-  
14 rective actions as have been agreed to by a majority of  
15 Commission members.

16 (b) FINAL REPORT.—A Commission shall submit to  
17 the President and Congress, and make concurrently avail-  
18 able to the public, a final report containing such findings,  
19 conclusions, and recommendations for corrective actions  
20 as have been agreed to by a majority of Commission mem-  
21 bers. Such report shall include any minority views or opin-  
22 ions not reflected in the majority report.

23 (c) TERMINATION.—

24 (1) IN GENERAL.—A Commission, and all the  
25 authorities of this title with respect to that Commis-

1 sion, shall terminate 60 days after the date on which  
2 the final report is submitted under subsection (b).

3 (2) ADMINISTRATIVE ACTIVITIES BEFORE TER-  
4 MINATION.—A Commission may use the 60-day pe-  
5 riod referred to in paragraph (1) for the purpose of  
6 concluding its activities, including providing testi-  
7 mony to committees of Congress concerning its re-  
8 ports and disseminating the final report.

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